PROPOSED LAND AND RESOURCE MANAGEMENT PLAN

FOR THE
DESCHUTES NATIONAL FOREST
PACIFIC NORTHWEST REGION

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Preface:

If any particular provision of this proposed action, or the application thereof to any person or circumstances, is held invalid, the remainder of the proposed action and the application of such provision to other persons or circumstances shall not be affected thereby.

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CHAPTER 1

INTRODUCTION TO FOREST PLAN

Purpose of Forest Plan

This Forest Plan (the Plan) will guide Forest Service programs and activities on the Deschutes National Forest from 1986 through 2001 unless a revision is needed earlier because of changing conditions. The Forest Plan guides all natural resource management activities and establishes management standards and guidelines for the Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management.

The Forest Plan embodies the provisions of the National Forest Management Act (NFMA) of 1976, the implementing regulations, and other guiding documents. Land use determinations, prescriptions, and standards and guidelines are a statement of the plan's management direction; however, the projected outputs, services, and rates of implementation are dependent on the annual budgeting process.

The Forest Plan establishes the monitoring and evaluation requirements needed to ensure that the direction is carried out and to determine how well outputs and effects were predicted.

Relationship of the Forest Plan to Other Documents

The Regional Guide for the Pacific Northwest Region contained direction and standards and guidelines that were used in developing the DEIS and Forest Plan. It outlined the 1980 RPA Program for the Deschutes which was evaluated as an alternative and parts of which were included in the preferred alternative.

This Forest Plan sets forth the preferred alternative for managing the resources of the Deschutes National Forest. The Plan results from extensive analysis and considerations that are addressed in the accompanying Draft Environmental Impact Statement (DEIS). The planning process and the analysis procedures that were used to develop the Plan are described or referenced in the DEIS. The DEIS also describes other alternatives considered in the planning process.

The Forest will do project level environmental analysis and will use the data and evaluations in the Plan and EIS as its basis. Environmental analysis for projects will be tiered to the EIS and Plan. Project environmental analysis provides a source of information for Forest Plan monitoring. It can also be used to identify new or emerging public issues or management concerns. Activities and management practices needed to facilitate the management area goals can be validated as well as the management area's prescription for a specific area of the Forest. All of the information included in the project environmental analysis is used in the monitoring process to determine when changes should be made in the Forest Plan.

The Forest Plan serves as the single land management plan for the Deschutes National Forest. All other land management plans will be replaced by the direction in this Forest Plan. All resource management plans will also be replaced by this Plan. Resource management objectives and schedules of management practices are displayed in Chapter 4.

Other documents have been or will be developed to give additional and more specific guidance to management activities within the direction that is established in this Plan. These documents are needed for site specific information or to carry out the direction in this Plan. These activities include:

- Wildernesses. (See Appendix 4.)
- Oregon Cascade Recreation Area.
- An accompanying map showing areas with and without restrictions on motorized vehicles.
- Fire Management Action Plan.
- Transportation Planning.
- Updates of Range Allotment Plans.
- Projects in sensitive scenic areas.

Plan Structure and Organization

The Forest Plan document is composed of five chapters, a glossary, and appendix material.

Chapter 1 introduces the reader to the purpose of the Plan, describes what it contains, describes the Forest's geographic location, and discusses the Plan's relationship to other documents.

Chapter 2 is a summary of the Analysis of the Management Situation. Included are summaries of the current management situation for each resource, a brief socioeconomic overview of the Forest and related communities and counties, potential supply for various resource goods and services, and a brief look at demand. By projecting supply, demand, and the Forest's current direction, a need to establish or change management direction was identified. The specific factors which indicated a need to establish or change direction are found at the end of Chapter 2.

Chapter 3 summarizes the Issues and Concerns and briefly explains how each was dealt with in the Forest Plan.

Chapter 4 is the heart of the Plan and contains the multiple-use resource goals which the Forest has established for the planning period. Accompanying this are the projected resource outputs, activities, and budget necessary to achieve the goals. The outputs and activities are considered to be the objectives the Forest should meet to implement the Plan.

Chapter 4 also contains the standards and guidelines for Plan implementation. They apply to the everyday on-the-ground projects and cover a wide range of resources. Some are specific and others provide procedures to follow. Also contained in Chapter 4 are Management Area descriptions. Prescriptions for the Management Areas define the types of activities that can occur within a Management Area. The locations of the various Management Areas within the Forest are shown on the map of Alternative E included with the Draft EIS.

Chapter 5 contains the monitoring program. As the Forest Plan is implemented, it will be monitored to determine if the outputs and standards and guidelines in Chapter 4 are being met and if the standards and guidelines are adequate and being applied.

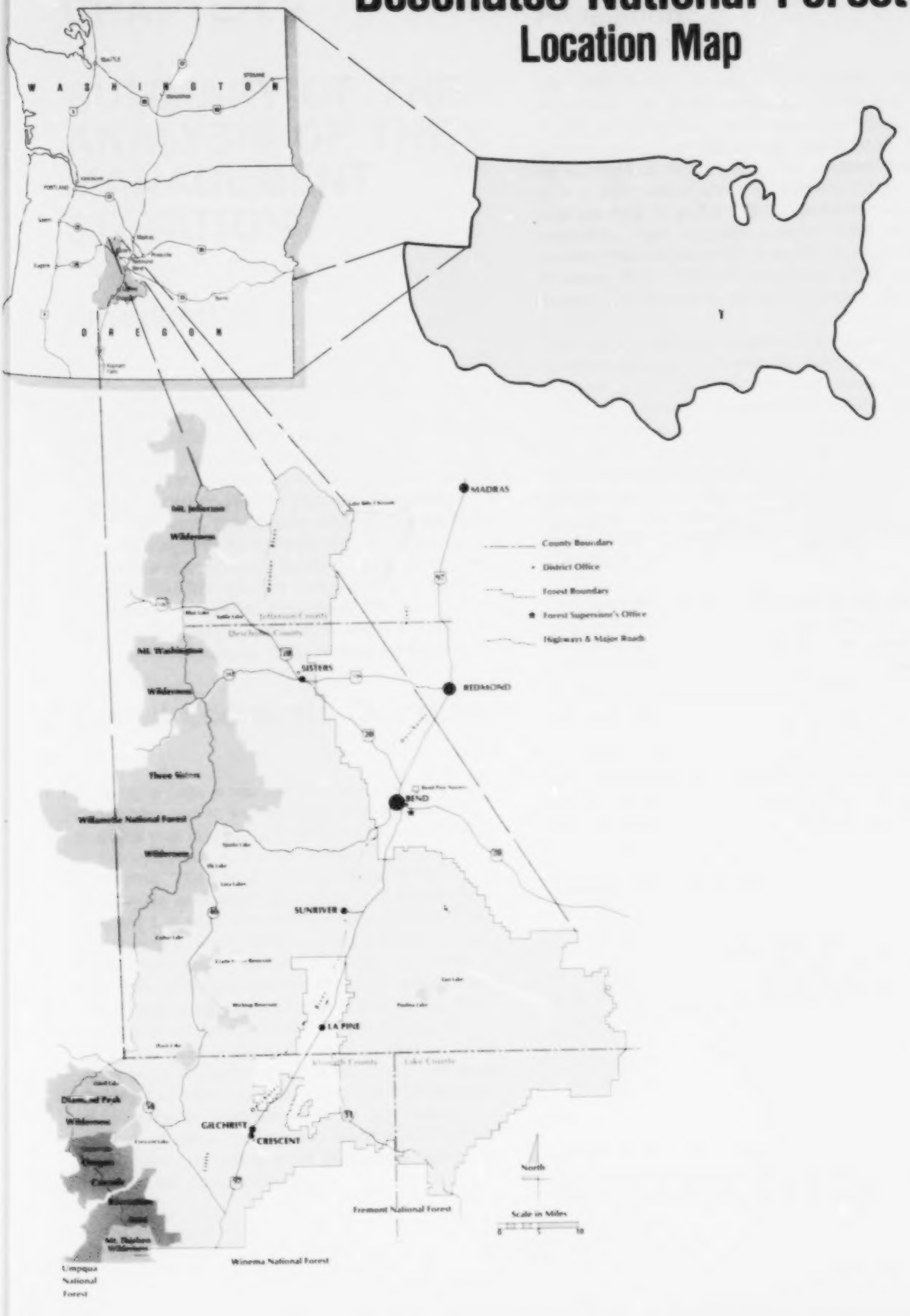
Forest Description

The Deschutes National Forest is located on the east slope of the Cascade Mountains in Central Oregon. The Forest lies mostly in Deschutes County but extends into Jefferson County on the north and into Klamath and Lake Counties on the south. Within the Forest boundary there are over 1.85 million acres, of which 1.6 million acres are National Forest lands.

The largest cities in the area are Bend and Redmond. Madras, Sisters, LaPine, Crescent, and Gilchrist are other important population centers. The Forest headquarters and two Ranger District offices are located in Bend. Also located in Bend is the Bend Pine Nursery. Ranger District offices are also located in Sisters and Crescent. The Redmond Fire Center is located in Redmond.

Map I shows the location of the Deschutes National Forest.

Deschutes National Forest
Location Map


W A S H I N G T O N
O R E G O N
PORTLAND
MADRAS
Mt. Jefferson
Wilderness
County Boundary
District Office
Forest Boundary
Forest Supervisor's Office
Highways & Major Roads
Jefferson County
Deschutes County
Mt. Washington
Wilderness
SISTERS
REDMOND
Three Sisters
Willamette National Forest
Wilderness
BEND
SUNRIVER
LA PINE
Klamath County
Lake County
Diamond Peak
Wilderness
GILCHRIST
CRESCENT
Oregon
Cascade
Mt. Thielsen
Wilderness
North
Scale in Miles
0
5
10
Fremont National Forest
Winema National Forest
Umpqua
National
Forest

CHAPTER 2

SUMMARY OF THE ANALYSIS OF THE MANAGEMENT SITUATION

Introduction

This Chapter begins with a brief overview of the socio-economic environment in which the Deschutes National Forest operates. This is followed by a summary discussion of the supply and demand situations pertaining to the significant market and nonmarket goods and services produced on the Forest. Next, the Chapter summarizes the consequential outputs and effects that would occur if the current management direction were continued, and identifies the need for change. Finally, topics for research needed to fill some of the gaps in scientific knowledge and to reduce the amount of uncertainty in resource management decisions are suggested.

Social Economic Overview

In order to assess the current economic and social conditions, and to estimate and monitor potential changes that might result from the implementation of a Forest Plan, a "Forest Influence Zone" was delineated. The Forest Influence Zone is the geographic area where the majority of Forest products are first used and where public concern about management of the Forest is concentrated. While forest management decisions on the Deschutes may have economic consequences to people outside of the nearby surrounding communities, the majority of resulting economic impacts are felt within the local economy. Therefore, because of its dominance in the Forest Influence Zone, Deschutes County was often used as a proxy for the full zone of influence for purposes of economic impact analysis. A larger area, which includes communities in adjacent counties and the Willamette Valley, was used for the social analysis.

Population

The 1980 census showed that Deschutes County's population was 62,142, Jefferson County was 11,599, and Klamath County was 59,117. Deschutes County grew by 31,700 people from 1970 to 1980, an increase of 104 percent. This equates to an annual growth rate of about 7.2 percent. Of this net change, only 10 percent (3,162 persons) was due to natural increase. The vast majority of the growth, 90 percent (28,538 persons), was due to in-migration. However, since 1980 the population growth rate has slowed significantly to about 1.5 percent per year.

The only incorporated cities in the Forest Influence Zone are located in Deschutes County: Bend (1980 population 17,263), Redmond (1980 population 6,452), and Sisters (1980 population 696). Concentrations of people in the unincorporated part of Deschutes County include the areas east and south of Bend and the communities of LaPine, Sunriver, Tumalo, and Cloverdale. In 1980, 40 percent of Deschutes County's population lived in incorporated cities, while 60 percent lived outside of these communities.[1]

The Crescent division of Klamath County has no incorporated cities. Communities in this area include Crescent, Gilchrist, and Chemult. The Grandview division of Jefferson County also has no cities. Settlements in this division include Camp Sherman and Grandview.

Obviously, Deschutes County's growth depended on attracting people from elsewhere. People cite recreation opportunities, climate, and quality of the environment as reasons for moving to, and living in, Deschutes County.

Local Economy

The three most important basic industries in the Forest Influence Zone include agriculture, wood products manufacturing, and recreation and tourism.

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[1] Labor Market Information, LM, State of Oregon, Employment Division, Department of Human Resources, 1984.

Agriculture

While increasing slightly in absolute terms, agriculture within the Forest Influence Zone has been diminishing in relative importance. In Deschutes County, gross cash farm income increased from $11.3 million in 1970 to $13.3 million in 1980, and to $16.1 million in 1983. However, agricultural producers in Deschutes County are facing increasing production costs and decreasing (or constant) farm prices. These factors, coupled with inflation, are resulting in the sale of many farms.[2]

Manufacturing

The manufacturing component of the Forest Influence Zone is dominated by the wood products industry. This industry currently employs about 17 percent of all workers in Central Oregon. The remainder is made up of diverse light industries. Wood products manufacturing is directly tied to the national housing market, and the housing market is tied to mortgage interest rates. Current high interest rates, the prospects of future increases in interest rates, plus increasing competition from Canadian imports are causing some instability in the industry.

Timber Industry

Harvesting

In 1984, nearly 244 MMBF of timber was harvested from the Deschutes National Forest. From 1980 to 1984, the average timber harvest was 186 MMBF.

Mills in Deschutes County are heavily dependent on timber supplied by the Deschutes National Forest. However, this relationship has experienced some unprecedented changes over the last few years. Ten years ago, over 80 percent of the logs bought by Deschutes County mills came from the Deschutes National Forest. Since 1981 this relationship has changed to the point where in 1983 only 47 percent of the timber sold from the Deschutes was purchased within the traditional Forest Influence Zone. Much of the volume began to go west over the Cascades due to the prospects of timber supply reductions west of the Cascades. It is anticipated that for the next five to ten years, local mills will continue to operate in a more competitive market for Deschutes timber.

Primary Processing

Currently two major sawmills are operating in the Forest Influence Zone—one in Bend and one in Gilchrist. In addition, Prineville has one major sawmill and five smaller sawmills. The three major mills have large and small log handling facilities. Together these mills have an estimated installed capacity, on a two-shift level, of about 463 million board feet per year. Of this total capacity, 72 million board feet represent capacity for small logs. Also, a veneer plant which has a capacity of 50 million board feet is located in Redmond.

Secondary Manufacturing

The dominant secondary wood processing activity in the Forest Impact Zone is millwork manufacturing. Ponderosa pine boards are the most common raw material for this industry. Furniture and cabinet making firms also exist in the area.

Recreation and Tourism

The recreation and tourism industry is increasingly being touted as a mainstay of the local economy. Winter and summer recreation expenditures have added an element of stability to the otherwise volatile wood products based economy. In 1983, 1.54 million out-of-State tourists visited Central Oregon, and spent an estimated $187.2 million during their stay. It is also estimated that an equal number of Oregonians visited Central Oregon during that year. In total, the resulting recreation expenditures generated approximately $374.4 million in personal income to the local economy.[3] Most of the recreation activities that attract these visitors are related to the opportunities on the Deschutes National Forest.

Social Environment

People and communities in the Zone of Influence have important, but different, ties to the Deschutes National Forest. The nature of these ties means that aspects of the Forest Plan Alternatives could affect each somewhat differently.

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[2] Butler, Jesse N.; Hewell, Denny; Sullivan, Michael C. Overall Economic Development Program for Central Oregon, for FY 1984-1985. Central Oregon Intergovernmental Council, 1984.

[3] Butler, Jesse N. Tourism and Recreation in Deschutes County. Central Oregon Intergovernmental Council, 1984.

Four types of communities have been identified and will be described. Also, two types of ties between Forest and community have been identified. One tie between Forest and community is its contribution of raw material for industry and the jobs it and Forest management provide. A second tie is the scenic and recreational environment the Forest offers to recreationists and residents. Two of the community types have very clear and nonoverlapping ties to the Forest while the other two communities are affected by both types of ties but in different ways.

Rural Industrial Communities

Rural industrial communities are closely tied to the Forest in work, subsistence, and play. The supply of available timber constitutes the economic link between the Deschutes National Forest and these communities with regards to for their timber harvesting, wood processing, and transportation businesses. The wood products industry is the predominant industry in towns like Crescent, Gilchrist, Prineville, and Redmond. But timber is not the only tie. People in these communities use fuelwood, fish, and game for part of their subsistence. Recreation (often roaded and/or motorized) is also a central component of the life styles in these communities. Therefore, the provision of diverse recreation opportunities on the Forest is also a major concern.

Rural Recreation and Residential Communities

Rural recreation and residential communities adjacent to, and within, the Deschutes National Forest are dependent primarily upon forest based recreation activities and recreation residences for their livelihood. Environmental and scenic amenities and nearby recreational opportunities are major reasons for their existence. Towns and settlements along the Metolius and the upper Deschutes Rivers, such as LaPine and Sisters, are included in this community type. Local service-oriented businesses provide convenience items and cater to tourists, skiers, and sportsmen.

Management activities which result in changes in the environmental quality, or appearance of the forest setting, amenities, and recreation opportunities all could have direct impacts on these communities.

Central Oregon Urban Center

This community type includes Bend which is the dominant community in the Forest Influence Zone. It has a large industrial sector based on wood products, and a large service sector keyed to recreationists and tourists. It is the major shopping and service center for outlying communities. The socioeconomic health of the wood products industry and the service sector, and the quality of the environment, are all central concerns to Bend's residents.

As a larger and more diverse community, some conflicts over Forest management can be absorbed without much social disruption. While more sensitive issues tend to pull people together within the smaller communities, they tend to polarize a community like Bend which has economic and emotional ties on all sides of the issues. The Deschutes National Forest, because of its amenities and economic contributions to Bend, renders it a Forest-dependent community.

Westside Communities

While activities on the Deschutes National Forest do not directly impact the daily lives of people in the populous communities west of the Cascades, they are important to many of them for various reasons. Over the last few years, more and more Deschutes National Forest timber sales have been purchased by the westside wood products industry. In addition, residents from the Willamette Valley participate in a wide diversity of recreational activities provided on the Deschutes National Forest.

These communities represent the more diffuse Regional publics which are affected by management decisions on the Deschutes National Forest. Conflicts over resource management decisions on the Deschutes National Forest are more likely to be seen as symbolic of broader issues. Responses may reflect the position of specific interest groups rather than the sentiment of local residents who are more directly affected by the issues.

Resource Supply Conditions

The primary issues which guided the development of the Deschutes National Forest Plan revolved around the management of the recreation, timber, visual, and wildlife resources. "Benchmarks" were developed in order to help define the decision space available to the Forest within which alternatives could be formulated to address the identified planning issues. The benchmarks were designed to explore the maximum supply potentials for each resource that could be produced while satisfying all of the legal requirements for forest planning. The legal requirements included those pertaining to maximum size and dispersion of harvest units, and those related to the minimum habitat requirements for spotted owls, bald eagles, goshawks, pine martens, northern three-toed woodpeckers, and primary cavity nesters.

The following table displays the outputs and effects associated with the various resource maximization benchmarks. With regard to the present net value estimates, timber outputs account for 50 to 85 percent of the total discounted benefits, while recreation contributes from 20 to 45 percent. Special use permits and range outputs account for less than 10 percent of the total discounted benefits side of the present net value calculations. The importance of recreation values on the Deschutes should not be overlooked. In fact, the objectives of the two maximum present net value benchmarks (Run-4 and Run-7) were achieved through the allocation of 70,000 acres of forested lands to an intensive recreation emphasis as opposed to wood production due to the relative tradeoffs between the recreation and timber values on those acres.

Table 2-1 also highlights the recreation, timber, visual, and wildlife output levels for each of the resource maximization benchmarks. From this, an idea of the magnitude of complementary and competitive relationships that exist between the production of these key resources can be obtained.

Resource Demand Projections

The term "demand" is one that is often used incorrectly in casual conversations about the use of forest resources. Economists, as usual, have a more rigorous and narrow definition of the word:

> "A schedule of quantities of an output that users are willing to take at a range of prices, at a given time, and given conditions of sale."

Currently, few definitive studies and sparse data is available to assess demand, in this sense of the word, for the variety of key resources provided by the Forest. Therefore, the following assessment of both current and anticipated future use levels is based on recent historical trends and some futuring expressions from various industries, organizations, and the public.

Timber

The demand for Deschutes National Forest timber is based on regional, national, and international markets for processed wood products, and, to a lesser extent, local and nearby regional markets for fuelwood. We will discuss these two markets separately.

With regards to processed wood products, the demand for timber is a function of the species being offered, and the strength of the markets for products which can be manufactured from those species. Since species stumpage prices are determined in the market place through the competitive bidding process, an examination of these prices reflects the buyers' anticipations of future market conditions at the time of sale. For example, during the period 1977 through 1982, the average annual high bid values for ponderosa pine ranged from $100 to $302 per thousand board feet (mbf). On the other hand, average annual high bid values for lodgepole pine, the second most common species sold on the Forest, ranged from $24 to $63 per MBF over the same period of time. The fluctuation in prices paid for any one species over time is heavily influenced by the strength of the building and paper industries, which in turn are affected by the level of interest rates for borrowing capital. The differences in stumpage prices between species reflect the variation in final retail values received for products made from those species, and the processing costs involved in making those products. It is interesting to note that the wide range in ponderosa stumpage prices were experienced in consecutive years ($302 in 1981 to $100 in 1982), reflecting the transition from a strong wood products market to a very weak one. It is reasonable to state that the demand for Deschutes National Forest stumpage at any point in time is quite volatile, and dependent upon a number of factors not controllable at the Forest level.

An examination of recent trends in stumpage prices paid for timber at the time of harvest, and the amount of timber sales which are unsold, give some additional clues as to the volatility and uncertainty surrounding the markets for wood products.

Table 2-1 Outputs and Effects of Benchmark Analyses

	Minimum Level	Max. PNV Dep.+Util (Run-4)	Max.PNV NDF-CMAI (Run-7)	Max. Timber	Max. Range	Max. Wildlife	Max. Visual	Max. Recreation
Discounted Benefits ($MM):								
Timber	0.0	1217.7	1053.6	1060.3	1060.3	992.1	964.7	858.1
Recreation	160.7	773.6	773.6	409.9	409.9	217.2	409.9	776.9
Range	0.0	6.8	6.8	6.8	10.5	3.7	5.6	5.6
Special uses	0.0	20.3	20.3	20.3	20.3	20.3	20.3	20.3
Discounted Costs ($MM)	119.0	516.8	434.2	521.2	521.2	389.6	381.9	416.4
PNV ($MM)	41.7	1501.6	1420.1	976.1	979.88	843.7	1018.6	1244.5
Harvest Levels (MMCF):								
Decade 1		938.9	505.7	517.8	517.8	450.8	455.4	402.7
Decade 2		704.2	505.7	517.8	517.8	450.8	455.4	402.7
Decade 3		528.1	505.7	517.8	517.8	450.8	455.4	402.7
Decade 4		396.1	505.7	517.8	517.8	450.8	455.4	402.7
Decade 5		316.0	505.7	517.8	517.8	450.8	455.4	402.7
Long Run Sustained Yield (MMCF)		439.8	505.7	517.8	517.8	450.8	455.4	402.7
Acres With Programmed Harvesting Prescriptions (M Acres):		1115.3	1125.4	1150.0	1150.0	972.1	1079.8	869.2
Recreation Use (MRVD/Year):								
Developed	143.5	1449.2	1449.2	494.8	494.8	494.8	494.8	1456.6
Dispersed	1037.8	1537.7	1537.7	1067.6	1067.8	1067.6	1067.8	1586.9
Wildlife Population Levels:								
Three-Toed Woodpecker (Pairs)		110	110	110	110	600	110	110
Deer (No. of Deer)		N/A	N/A	N/A	N/A	33,500	N/A	30,500
Osprey (Pair)		N/A	N/A	N/A	N/A	180	N/A	N/A
Pine Marten (No. of P.M.)		100	100	100	100	1890	100	100
Woodpeckers (% of Bio. Pot.)		20	20	20	20	80	20	20
Spotted Owls (Pairs)		10	10	10	10	12	10	10
Bald Eagles (Pairs)		45	45	45	45	50	45	45
Goshawks (Pairs)		70	70	70	70	115	70	70
Old Growth (% of Ecoclass)		0	0	0	0	20	0	0
Visual Quality:								
Percent of Max. Potential Retention, Partial Retention		0	0	0	0	4	100	35
Range (Permitted M AUM's/Year)		29	29	29	45	16	24	24

Table 2-2 displays the volume of timber harvested from the Deschutes National Forest and the average stumpage prices paid at the time of harvest for the years 1981 through 1985. As was true of the bid prices discussed in the previous paragraph, 1982 is portrayed as a weak market year both in terms of volumes harvested, and prices paid for the stumpage compared to the other years.

Table 2-2. Volumes Harvested and Stumpage Prices Paid (1981-1985)

Year	Volume Cut (MBF)	Price Paid ($/MBF)
1981	193,744	154
1982	145,894	95
1983	212,288	137
1984	244,069	134
1985	246,987	142

Table 2-3 presents the total volume of timber offered, sold, and unsold from the Deschutes National Forest for the years 1981 through 1985. Over that period of time, approximately 95 percent of all timber offered for sale by the Forest was purchased. This implies that there has almost always been some demand for timber from the Forest, although sometimes it is stronger than others, as is evident by the fluctuation in prices offered and paid for stumpage. Of the timber sales left unsold, about 80 percent of the volume was lodgepole pine. Very seldom is ponderosa pine left not purchased. As indicated by the above discussion on bid values by species, markets for lodgepole pine are marginal compared to those for ponderosa. In times of depressed economies, it may be more difficult to sell this species to commercial wood processors.

Table 2-3. Volumes Offered, Sold, and Unsold (1981-1985)

Year	Offered(MBF)	Sold (MBF)	Unsold (MBF)
1981	150,430	140,793	9,637
1982	185,006	178,889	6,117
1983	216,398	216,398	0
1984	192,413	188,913	3,500
1985	140,550	121,002	19,548

Mills in Deschutes County depend heavily on timber supplied by the Forest. However, this relationship has experienced some unprecedented changes over the last few years. Ten years ago, over 80 percent of the logs bought by Deschutes County mills came from the Deschutes National Forest. Since 1981 this relationship has changed to the point where in 1983 only 47 percent of the timber sold from the Deschutes was purchased within the traditional Forest Influence Zone. Much of the volume was purchased by wood products firms located on the west side of the Cascades. It anticipated that for the next 5 to 10 years local mills will continue to operate in this more competitive market for Deschutes timber.

While it is likely that timber will continue to be an important commodity on the Forest, the immediate future for the Pacific Northwest in general with regard to the wood products industry is not particularly bright. High home mortgage rates and the loss of market shares to imports from Canada will probably continue to prevent the wood products industry in the Northwest from returning to the strength it experienced during the 1970's within the near forseeable future. A quantification of the expected future demands for timber from the Deschutes National Forest, as expressed in the 1985 RPA Program, is presented in Table 2-4.

The use of wood for fuel, especially lodgepole pine, is another component of the demand for timber on the Deschutes National Forest. The growth in firewood use becomes more apparent by examining the 1,000 percent increase in the number of firewood permits issued over the past 13 years.

Some of this increase in personal use firewood consumption is attributable to a increase in local population. Estimated Deschutes County population has grown from 30,000 in 1970 to 64,000 in 1982. Increasing costs of alternative energy sources have also been a factor. Firewood cutting also appears to be a way of life in Central Oregon, both as a source of supplemental income and as a recreation experience.

These trends of increasing population, rising energy costs, and ease of accessibility have made firewood an increasingly important product of the Deschutes. Several factors, however, may temper this rising trend in the future. These include: (1) a slowing down of the population growth, (2) increasing remoteness of good wood sources as areas near towns are used up, (3) the possibility of regulation of wood burning stoves to preserve air quality, (4) the increasing energy efficiency of new homes and leveling off of the increases in alternative energy sources, and (5) the continuing harvesting of lodgepole pine in the Forest's normal sale program.

If firewood consumption levels off, 20 percent of the current mature lodgepole pine inventory will be removed as firewood over the next 10 years. If we assume that firewood consumption increases at 10 percent per year, as much as 40 percent could be removed as firewood in the next 10 years.

Recreation

The Deschutes National Forest plays a unique role as a recreation provider for Oregon and the Pacific Northwest. Bounded by the Crest of the Cascades on the west and the high desert on the east, the Forest offers a wide variety of recreation opportunities. These opportunities include Wilderness, developed ski areas, and developed campgrounds associated with the many lakes, streams, and reservoirs on the Forest. Most of the Forest is also available to dispersed recreation uses such as hunting, fishing, camping, and off-road vehicles.

The Forest's geographic location makes it unique in relation to the major population centers in the Northwest. Situated along the east flanks of the Cascade Mountains, the Forest provides a dry climate for recreation desired by much of the region's population living in the rain belt west of the Cascades. The short driving time—2-4 hours from Eugene, Salem, or Portland, and 7-8 hours from Seattle—make the Forest very accessible both on weekends and for longer vacations.

Several major resorts are located within the Forest boundary including Sunriver, the Inn of the Seventh Mountain, and Black Butte Ranch. These resorts offer their guests a wide variety of recreation experiences, many of which take place on the Forest.

In 1983, the Deschutes National Forest was ranked 5th among the 19 National Forests in the Pacific Northwest Region, and 27th among 125 Forests in the Nation with regard to total recreation use. Recreation visitor use for 1984 was 2,600,000 visitor days. Assuming that people's propensity to recreate will remain relatively constant over the forseeable future, the demand for recreation on the Deschutes is projected to grow at the same rate as the projected population growth for the State of Oregon, which is estimated to be 2 to 2.5 percent per year.

Range

Demand for livestock grazing has been fairly constant in the cattle industry with most of the cattle allotments used each year. Demand for sheep grazing has been light with only 0 to 4 of the 15 sheep allotments being used on an annual basis since 1978. Part of the reason for this is the lack of water on the Forest, resulting in high costs to graze livestock since much of the water has to be hauled by truck.

Wildlife

The primary demand for wildlife focuses on mule deer. Sportsmen groups have requested that mule deer populations be increased, some as high as the maximum potential. The Oregon Department of Fish and Wildlife has established herd management objectives that are higher than the current population levels, but not as high as the maximum. Current populations are 20,300 deer, and their objectives are for 24,850.

Table 2-4 shows an estimate of the supply and demand/consumption for the major resources on the Forest.

Table 2-4 Supply and Demand/Consumption for Significant Resources

Significant Resources	Unit of Measure		Decades				
			1	2	3	4	5
Devevloped Recreation	MRVD	Supply	5295	5295	5295	5295	5295
		Demand	1763	2257	2890	3700	4736
Dispersed Recreation	MRVD	Supply	3251	3251	3251	3251	3251
		Demand	1587	1774	1990	2267	2621
Livestock Grazing	MAUM	Supply	60	60	60	60	60
		Demand	32	32	32	32	32
Mule Deer	M deer	Supply	33.5	33.5	33.5	33.5	33.5
		Demand	24.9	24.9	24.9	24.9	24.9
Firewood	M Cords	Supply[1]	5100	5100	5100	5100	5100
		Demand[2]	60.0	61.2	62.4	63.6	64.9
Timber	MMCF	Supply	534	534	534	534	534
		Demand[3]	467	467	467	467	467
Geothermal	M Acres Of High Potential	Supply	126.1	126.1	126.1	126.1	126.1
		Demand	Information not available.				

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[1] Based on lodgepole pine.

[2] Based on the assumption that demand is corelated with population growth in Oregon.

[3] Based on RPA program for the Deschutes National Forest.

Consequences of Continuing on With Current Direction

Section 219.12e of the NFMA regulations requires that Forests evaluate and document the outputs and effects associated with continuing on with current management direction, and the ability of this "No Action" alternative to address the identified planning issues and management concerns.

The Current Direction Alternative (Alternative A) was characterized primarily in accordance with the approved 1978 Deschutes National Forest Land Management Plan and the 1974 Deschutes National Forest Timber Management (TM) Plan, as amended in 1980 and 1984. However, other plans were also considered. They include the Sykes Act Plan, the Land Adjustment Plan, individual range allotment plans, the Fire Management Plan, and numerous other individual plans and policies which provide direction under the current management situation.

Outputs and Effects of Continuing Current Direction

The process of evaluating the short and long run outputs and effects of continuing on with the current management direction involved several interpretive and analytical steps. FORPLAN was one of the key analytical tools used in this process. Therefore, one important step involved translating the direction provided by the Timber Management Plan and the 1978 Land Management Plan into FORPLAN prescriptions and constraints. For example, it was necessary to constrain FORPLAN so that the allocation of analysis areas to different resource management options in the model reflected the land use pattern of the current management situation. Table 2-5 displays the acres of Deschutes National Forest land allocated to the various resource management options according to the 1978 Land Management Plan.

Table 2-5 1978 Land Management Plan Management Options

Management Options	Acres[1]
Wood/Forage	657,107
Game Species	195,535
Visual Management	313,623
Game Species/Visual	24,600
Dispersed Recreation, Roaded and Unroaded	57,361
Protection Management	31,861
Special Management	39,717
Research Natural Areas	7,227
Bend Watershed	3,536
Developed Recreation	8,912
Old Growth Management	29,104
Wilderness	182,506
Oregon Cascade Recreation Area	42,656
Experimental Forest	10,043
Mining Claims	3,504

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[1] R2 map acres. Adjusted to reconcile with LANDSAT acres.

The current timber management direction on the Forest was characterized and modelled according to the existing Five Year Timber Sale Action Plan and the Timber Management Plan. However, before this information could be input into the FORPLAN model, the Interdisciplinary Team assessed each Management Option in the existing 1978 Land Management Plan in order to determine which should contribute to the timber program. It was determined that four of the Options listed in Table 2-5 should be modelled in FORPLAN as contributing to the allowable sale quantity. These consisted of (1) Wood/Forage, (2) Game Species, (3) Visual Management; and (4) Game/Visual. The primary emphasis of the Wood/-Forage Option is the production of wood fiber and useable forage. The Game Species Option also produces wood, but only at levels compatible with maintaining the desired deer habitat conditions. The same is true of the Visual Management Option. Programmed timber harvesting is permitted, and even necessary to meet the objectives of this allocation, but wood outputs are secondary in importance to meeting the visual quality goals.

Once it was decided which Management Options should be modelled as contributing to the allowable sale quantity (ASQ), prescriptions were developed to reflect the various management practices which would be applied to meet the goals and objectives for each of the respective Options. The intent of this step in the process was to provide the model with a wide range of prescriptions to choose from with regard to capital investment levels, rotation lengths, and wood outputs in order to allow it the flexibility to best meet the objectives of any one benchmark or alternative. For example, for each working group, FORPLAN could choose from any of three to five prescriptions representing different investment levels in order to satisfy the objectives of the Wood/Forage Option. In addition, for each prescription, a half dozen or so timing choices for final harvest were also available to the model to select from.

Special prescriptions were developed to meet the needs of the Visual Management and Game Species Options. For example, prescriptions with multiple thinning entries and long rotations were used to achieve the big tree/parklike characteristics associated with the Visual Management Option. On the other hand, prescriptions designed to provide sufficient crown closure for thermal cover were developed for the game species allocations. Finally, options such as Old Growth and Undeveloped Recreation, which do not contribute to the ASQ, were assigned to FORPLAN prescriptions which do not permit programmed timber harvest scheduling.

The current Five Year Timber Sale Action Plan, the TM Plan, and the Swatter EA were used to establish the first decade harvest levels for all species, and the 20 to 30 year conversion rates for mature lodgepole pine. The five year action plan was used to establish the first decade harvest level constraints for ponderosa pine and mixed conifer. The 1974 TM Plan called for the conversion of mature lodgepole pine over the first four decades. However, in 1980 the mountain pine beetle epidemic resulted in a decision to accelerate the harvesting of mature lodgepole pine in order to minimize the loss of green material. An environmental assessment was prepared which determined that the lodgepole pine should be converted over the next 20 years, rather than 40 as identified in the TM Plan. Areas where recreation or visual values were important were scheduled for treatment on a 30-year program in order to help mitigate the visual impacts of accelerated harvesting.

In addition to these working group specific harvest level constraints for the first few decades, nondeclining yield constraints were used in order to provide guidelines for the long term harvest scheduling calculations. Constraints were also used in order to retain 30 to 50 percent of the forested lands allocated to the Game Species Option in thermal cover per decade. Constraints were also incorporated in order to control for maximum size and dispersion of harvest units. Where lodgepole pine was not a factor, harvest scheduling constraints were used in the Visual Management Options to limit the area that could be harvested per decade to meet either retention or partial retention objectives. There was also a reduction in yields to reflect trees being left for snags. Finally, an ending inventory constraint was used to ensure that an adequate amount of inventory was left at the end o the harvest scheduling planning horizon to continue on with the long run sustained yield harvest levels into perpetuity.

Table 2-6 reflects the outputs and effects of continuing on with Current Direction for five decades.

Table 2-6 Current Direction Outputs and Effects

	Decade				
Output/Effect	**1**	**2**	**3**	**4**	**5**
WILDLIFE					
Pairs of Eagles	19	15-20	15-20	15-20	15-20
Pairs of Osprey	100-125	100-125	120-125	120-150	150-180
Pairs of Goshawks	55-70	55-70	55-70	40-50	30-35
Pine Marten	1,280	1,070	755	655	565
Woodpeckers	60%	60%	60%	60%	60%
Mule Deer	20,300	20,300	20,300	20,300	20,300
TIMBER (MMCF's)					
Allowable Sale Quantity	396.1	416.1	416.1	416.1	416.1
LRSY	416.1	Achieved in the 2nd decade			
Lodgepole Issue		Not effectively addressed			
RANGE (MAUM'S)	29.0	29.0	29.0	29.0	29.0
RECREATION (MRVD's)					
Developed Rec.	1393	1495	1587	1700	1837
Dispersed Rec.	1611	1831	1887	1954	2036
VISUAL QUALITY					
Retention-% Forest	15% for all decades				
Partial Retention-% Forest	14% for all decades				
ENERGY					
Geothermal	Some of the high potentials are not available.				
Firewood (Lodgepole), Cords	60,000	[1]	[1]	[1]	[1]
CURRENT BUDGET	$21,840,000				

[1] There is no long-term program.

The outputs and effects displayed are only those that are the focal points of the Issues or are tied to either regulation or policy.

Need to Establish or Change Direction

Following the analytical step of estimating the consequential outputs and effects of continuing on with the current management direction, the interdisciplinary team concluded the Analysis of the Management Situation by identifying pitfalls in this alternative, and depicting reasons for change. The following discussion summarizes ten reasons which were identified as needs to change management direction on the Forest in order to better satisfy new laws, regulations, and policies, and to better address the planning issues and concerns.

1. The Forest's 1978 Land Management Plan and numerous functional plans are not well integrated. As a consequence, much of the integration must occur through the NEPA process at the project level. This makes it difficult to determine what the overall effect of providing this integration will have on long-range programs and outputs. It is also not consistent with the intent of the National Forest Management Act. The 1978 Land Management Plan needs to be changed to provide the necessary integration. In particular, the timber management plan needs to be developed, based on the land use pattern and other multiple-use considerations through an integrated planning process.

2. Because of new and updated information and some experience with implementing the 1978 Land Management Plan, some changes in the land allocations are needed. The Game Species/Visual allocation is conflicting. Some management needs and opportunities within the Protection Management Option have been identified. Some areas allocated to the Game Species Option are not important habitat. Highly sensitive viewsheds were allocated to the Wood/Forage Option. Other viewsheds which are not sensitive were allocated to Visual. In some cases portions of viewsheds were allocated. Some adjustments are needed.

3. Recreation use projections indicate the Forest can expect increasing use. Evaluation of the recreation resource revealed that there are areas on the Forest that have high recreation value. Also recreation opportunities could best be provided on these areas if they were allocated so that they could be managed for recreation goals and purposes. Many of these areas are currently allocated for Visual or Protection management. Visual areas with the potential to handle intensive recreation use need to be shifted from a visual emphasis to a recreation emphasis. Visual quality would still be a consideration within these areas, but the major goal of these areas would be to provide recreation opportunities for large numbers of people. Many areas currently in Protection management should be considered for a land allocation that would emphasize management for undeveloped or dispersed recreation emphasis.

4. An estimated 275,500 acres of mature or overmature lodgepole pine are infested with mountain pine beetles or susceptible to attack. The entomologists are predicting most of the mature lodgepole will be destroyed in 20 years. The current timber management plan calls for converting the mature lodgepole to younger stands in 40 years. There is a need to accelerate the harvest and management of mature and overmature lodgepole pine to retrieve the green volume rather than have pine beetles kill it. Tree stands within campgrounds and sensitive visual areas need treatment to prevent loss and degradation of these areas. Large areas with many dead trees also would dead trees also would create a high fire hazard.

   The beetle also has the potential to attack ponderosa pine which is our most valuable commercial tree species. Stands of trees used by bald eagles and osprey for nesting are also being destroyed and need treatment.

5. Current Forest policy protects habitat for threatened and endangered wildlife species on a short-term basis and provides for coordination of activities to minimize disturbance. Current policy does not provide for long-term or future habitat needs of the species. Specific management direction and prescriptions are needed to establish long-term habitat management for northern spotted owls and bald eagles.

6. The 1978 Land Management Plan provides little management flexibility in the Bend Municipal Watershed. As a result of the Bridge Creek Fire, the need for some level of management to reduce the chances of additional large wild fires has been recognized.

7. The 1978 Land Management Plan management options lacked specific direction for fire. The need to utilize fire to meet resource objectives has been recognized. The Forest needs to change its fire management program to better address the needs of all resources.

8. The Forest needs to establish management direction for roadless lands not recommended for inclusion in the Wilderness system or not recommended for further planning.

9. In light of increasing use of firewood and projected decreasing supplies, the Forest needs to establish a long-range firewood program.

10. As gravel sources are exhausted on private lands, the Forest needs to establish direction on disposal of gravel on National Forest lands. Should mineral enterprises develop on private lands, the Forest should establish direction which emphasizes minimizing competition.

Information Needs

- The suppression effect of overstory or leave trees on the growth of younger trees.
- How to manage tree stands to provide for old growth characterisics.
- Other needs to be developed.

CHAPTER 3

RESPONSE TO ISSUES, CONCERNS, AND OPPORTUNITIES

The identification of issues and concerns was an ongoing process in the development of the Plan. This process is documented in Appendix A of the Draft Environmental Impact Statement (DEIS). Eighteen issues, concerns, and opportunities were addressed. Of these, 8 had a wide range of treatments and 10 were responded to by applying standards and guidelines which were designed to protect or enhance the resource. A discussion of how the Preferred Alternative (Alternative E) responded to the issues as reflected in this Proposed Forest Plan follows.

For issues related to water quality, soil productivity, cultural resources, and threatened or endangered plants, standard and guidelines were developed to guide management activities. These are contained in Chapter 4.

For issues and opportunities relating to wildlife, several approaches were used. For cavity dependent species, raptors, herons, peregrine falcon, and wolverine, standards and guidelines were developed which include procedures to follow when they are present. For bald eagles, northern spotted owls, and osprey, Management Areas and prescriptions were developed to achieve the desired habitat conditions. The amount of habitat provided for the bald eagle is a result of consultation with the Endangered Species Branch of the Fish and Wildlife Service and is consistent with recovery goals of an Interim Recovery Plan. The amount of northern spotted owl habitat is based on the Regional Guide for the Pacific Northwest Region. Osprey habitat in the long term is provided around Crane Prairie, but no specific direction was established for nest sites elsewhere on the Forest.

Habitat for goshawks, pine marten, and numerous other species is provided by prescriptions which result in mature and old growth forests. To ensure that habitat will be adequately distributed, old growth areas were established.

Deer habitat was provided for by developing Management Areas and prescriptions. Management of the vegetation is designed to provide for optimum forage and cover. The amount of habitat and condition is to provide for an increase in the mule deer population compatible with the population objectives of the Oregon Department of Fish and Wildlife.

Issues related to timber were addressed by (1) determining the lands that were suitable for timber production, (2) development of numerous sets of yield tables which reflect different investments and objectives, (3) developing a strategy for harvesting the mountain pine beetle infested mature lodgepole pine, (4) developing all the multiple use objectives necessary to accomplish the goals and objectives of the Preferred Alternative, and (5) completing runs with FORPLAN which incorporates the above. One of the relationships that existed in developing the timber program was, if lodgpole pine were forced to be harvested in the early decades, the amount of ponderosa pine would be decreased below current levels. Ponderosa pine is the most valuable species on the Forest and to industry. If the amount of ponderosa pine decreases, this reduces the job opportunities and revenues to the government and counties. To deal with the catastrophic conditions that exist in lodgepole pine and to provide for stability to local communities, a departure timber schedule was developed which permits harvesting of the lodgepole pine while maintaining ponderosa pine near the current level. This was done while meeting multiple use objectives for timber, recreation, visual quality, wildlife, watershed, and soils.

Recreation issues and opportunities were primarily addressed through three prescriptions and Management Areas which were developed. One prescription emphasizes developed recreation with a high interaction of people (Recreation Opportunity Spectrum (ROS) Roaded Natural or Rural). Another one emphasizes undeveloped recreation where people would have little contact with others (ROS Semiprimitive Nonmotorized and Semiprimitive Motorized). The third prescription emphasized winter recreation (ROS Semiprimitive Motorized and Nonmotorized, and Roaded Natural). These prescriptions are applied to areas of the Forest which have the higher capability to produce the desired experiences. Dispersed recreation is also provided throughout the Forest in the form of hunting, fishing, rafting, hiking, and driving for pleasure. Another important dimension of recreation in the

Central Oregon area is the destination resorts which are located near the Forest and are heavily dependent upon the recreational opportunities associated with the Forest.

Tied to recreation is scenic quality. Prescriptions were developed to provide for management of vegetation in areas seen by large numbers of people so that scenic beauty is protected or enhanced. These prescriptions result in small areas being treated at any one time, quickly cleaning up areas following any activity which disturbs the vegetation or soil, and managing timber to produce a variety in the landscape or large trees. The exception to meeting visual quality standards will be in mature lodgepole stands in visual areas. Some disturbance and larger cutting units will be apparent.

The Plan addresses geothermal in that the Management Areas and prescriptions define the compatibility of leasing and development and provide direction on any restrictions that might be necessary to protect resources. Leasing is denied in the interior of the Newberry Crater. Exploration and development of geothermal energy on leases issued prior to this Plan must, in their development plans for leased areas and in so far as practical, incorporate the direction included in this Plan. Due to lack of site specific data, no decision on where leasing and development would be permitted are included in the Plan. Areas that will be leased will be determined through additional environmental analysis tiered to this Plan and in compliance with the NEPA process.

A key local issue is personal use firewood. The Plan provides for 60,000 cords annually (does not include logging residue) to be made available as firewood. Since much of this wood is lodgepole pine trees, the amount is included as a part of the allowable sale quantity. In addition to lodgepole, other species can also be made available.

Another aspect of the issue was whether the Forest could meet its share of the Resources Planning Act program. The Plan exceeds the program levels for timber in the first two decades and then meets it for the next three decades. The program levels for range are provided for but whether they are actually achieved will depend somewhat on demand, particularly for sheep grazing. The Plan exceeds the wildlife habitat improvement program, primarily because of the amount of prescribed burning included in the prescription for emphasizing deer habitat. The program for developed and dispersed recreation is not met in the early decades primarily because of a lack of demand. The Forest is capable of meeting the recreation program, should the use trends and demand change.

For roadless areas, the Plan, in the long term, provides for the development of approximately 100,000 acres while retaining approximately 45,000 acres as undeveloped. In the short term, timber harvesting or road building were not scheduled as a part of the timber program. However, because of the mountain pine beetle epidemic, some harvesting and road building may occur to salvage material, provide firewood, or reduce fuels and fire hazards. Roading may also occur as a result of geothermal exploration or to provide access for recreational purposes.

All of the issues, to one degree or another, affect the lifestyles and economy locally and regionally. The Plan provides for maintaining jobs, income, and revenues near current levels. Opportunities for recreation are improved through increasing emphasis on developed recreation and winter recreation. Hunting opportunities should increase in the long term when the deer herds increase. A program for providing personal use firewood is a part of the Plan. The scenic beauty of areas frequently seen or visited by people will be protected or enhanced. Air and water quality will be protected.

The direction for accomplishing the goals and objectives of the Plan is contained in Chapter 4. For additional information on how the issues were addressed, refer to Chapter II of the DEIS.

CHAPTER 4

FOREST MANAGEMENT DIRECTION

Introduction

This chapter describes the long-range management direction for the Forest, its desired future conditions, and expected outputs. The direction will be used by Forest Service personnel through the Program Development and Budgeting process to translate desired goals and objectives of the Plan into on-the-ground results. The management direction is divided into three broad categories. The first is desired future condition and the outputs and activities necessary to accomplish it. The second is the Forest-wide management requirements which set the conditions that must be maintained while achieving the goals and objectives. Next is the management area direction which indicates the management practices or prescriptions that will be applied to specific land areas.

Additional direction and supporting information is contained in the Appendices.

Forest Management Goals

The Forest-wide goals describe the future desired state or condition of the Forest's resources that the Plan is designed to achieve. The management objectives and direction in the subsequent sections are aimed at achieving these goals. These goals reflect the issues and concerns listed in Chapter 3 and appropriate laws and regulations. They are designed:

1. To provide equal opportunity to all persons regardless of race, color, creed, sex, marital status, age, handicap, religion, or national origin.
2. To protect the unique and valuable characteristics of floodplain and riparian zones and to protect or improve water quality and fish habitat on the Deschutes National Forest.
3. To maintain or enhance soil productivity.
4. To provide for the protection and preservation of prehistoric and historic sites, buildings, objects, and antiquities of local, regional, or National significance.
5. To provide habitat for viable populations of all vertebrate species currently found on the Forest found on the Forest and to maintain or enhance the overall quality of wildlife habitat.
6. To protect and manage habitat for the perpetuation of plants which are listed by the State or Federal agencies as threatened, endangered, or sensitive.
7. To provide for the optimum production of wood fiber consistent with various resource objectives, environmental constraints, and economic efficiency.
8. To provide fuelwood as a renewable energy resource for personal and commercial uses.
9. To provide for exploration, development, and production of energy resources on the Forest while maintaining compatibility with other resource values.
10. To provide safe, efficient access for the movement of people and materials involved in the use of the National Forest lands.
11. To provide a fire protection and use program which is responsive to land and resource management goals and objectives.
12. To protect and provide the benefits of Wilderness values for the public in accordance with the Wilderness Act of 1964.
13. To preserve and provide interpretations of unique geological, biological, and cultural areas for education, scientific, and public enjoyment purposes.
14. To provide old-growth tree stands for (1) preservation of natural genetic pools, (2) habitat for plants and wildlife species associated with overmature tree stands, and (3) contributions to the diversity spectrum.

15. To provide a range of quality recreation opportunities in an undeveloped forest environment.

16. To provide a full range of quality outdoor recreation opportunities within a forest environment that can be modified for visitor use, visitor satisfaction, or to accommodate large numbers of visitors.

17. To provide Forest visitors with visually appealing scenery.

18. To manage vegetation and to provide optimum forage conditions for use by domestic livestock.

Desired Future Condition of the Forest

The present condition of the Forest is detailed in the Analysis of the Management Situation. As the Forest Plan is implemented, the condition of the forest will change over time. This section summarizes the expected changes by resource area.

Recreation

The Deschutes National Forest is famous for its open park-like stands of large ponderosa pine. The Forest will continue to retain this appearance in the future through visual management of key areas. The Plan provides for visual resource management along all State and most County highways as well as many Forest Service roads including those leading to major trailheads. Most major buttes and recreation areas are also protected. The lodgepole pine stands that are now being killed by the mountain pine beetle will also be regenerated and the new stands will be far more attractive than what currently exists. Landscapes will be enhanced by opening views to distant peaks, unique rock forms, unusual vegetation, or other features of interest.

Mount Bachelor will be the center for both alpine and nordic skiing on the Forest. Recreationists will have more to do in the summer on the Mountain as the area shifts its emphasis to a year round resort. No additional alpine areas will be built on the Forest until Mt. Bachelor is near the capacity of the Master Plan. Nordic areas, however, may be added elsewhere on the Forest as the need develops.

The five Wilderness areas on the Forest and the Oregon Cascade Recreation Area (OCRA) are expected to receive increasing use. Management in these areas will be governed by the managemen prescriptions and the management plans in Appendix 4.

Unusual geological or biological sites and areas be preserved and managed for education, resear and to protect their unique character. Facilities ar opportunities may be provided for public interpret tion and enjoyment of the unique values of these sites and areas. The primary benefiting uses of these areas will be for developed and dispersed recreation, research, and educational opportuniti

Developed recreation sites will become increasin popular in a management environment of tighter budgets. New campgrounds will be built and existing sites will be expanded to meet this dema but rehabilitating and heavily maintaining existing sites will be emphasized. The objective will be to keep occupancy rates, when measured on a Fore wide basis, at approximately the current level of percent.

The private sector will be constructing new campgrounds and operating new and existing campgrounds. Existing resorts operating under special-use permits will probably be sharing in the provision of new camping facilities where possible.

The number of resorts that provide overnight accommodations will not increase. Maintaining compatability with the forest environment and the RO classification of the area will be objectives as res facilities and experiences to be provided are improved. To meet the increasing needs of year rou recreation, there will be winter as well as summe operations.

Visitors will find more day use facilities such as boat ramps, picnic areas, and interpretive sites. T kinds of facilities will change over time to reflect changing needs of the public.

More visitors will be participating in activities whic are not associated with developed sites. Activities which disperse recreationists throughout the Fore include nordic skiing, river rafting, mountain bicyc ing, and ORV use. These sports will be accommodated by the addition of trails and trailhead facilities.

Forest users will also be able to enjoy more winte trails for over the snow vehicles. More trails and trailhead facilities such as snow parks and shelte will be added or expanded for these dispersed recreation activities also. The Forest will also offer additional opportunities for all terrain vehicles and off-road vehicles such as motorcycles for summer use. Part of the Forest Service road system that is not maintained for public use and that is not involved in logging operations will be open for this use.

Timber

The desired future condition is a regulated forest in which the stands of trees will be managed to accomplish a multitude of resource management objectives including, but not limited to, the production of useable wood fiber, and the maintenance and enhancement of both visual quality and wildlife habitat. A fully regulated forest is one in which stands exist in such age and size class proportions, and are consistently growing at such rates that an approximately equal annual or periodic yield of desired size and quality may be obtained. There must be a progression of size and age classes so that approximately equal volumes of harvestable trees are regularly available for cutting.

This long-range goal will be accomplished through management activities which include (1) species composition and stocking level control; (2) animal, insect, and disease protection; (3) regeneration of stands which are no longer capable of optimum growth performance; and (4) utilization of genetically improved stock when possible and necessary. Therefore, on the lands where timber production is the primary objective, vegetative management over the long run will produce a forest which exhibits different biological and physical conditions than does the forest with which we are familiar. However, many of these future conditions will not be fully evident for another 50 to 150 years.

For example, since achieving and maintaining high rates of wood fiber growth is a primary objective, many of the existing mature and overmature natural stands of trees will be harvested and replaced with more vigorous and faster growing managed stands. This conversion will become very apparent during the next 20 years amongst the large acreages of mature lodgepole pine stands which are being killed by mountain pine beetles. Two-storied ponderosa pine stands are also a priority for conversion during the next 20 years. In these stands, the mature overstory will be removed, and the young understory will become the future crop trees. Most of the remaining mature and overmature stands of ponderosa, mixed conifer, and mountain hemlock will be converted before the end of the fifth or sixth decades. Over time, the schedule of regeneration harvesting and thinnings will be staggered so as to prevent a repeat of having large contiguous areas in homogeneous age classes.

As these existing stands are harvested, they will be replaced with managed stands. Some of these stands will be the residual understories of previous multi-storied stands. Others will be completely new stands of trees which will be regenerated naturally, or by planting with genetically improved seedlings. Stocking level control measures will be applied to many of these new stands in order to ensure that they have the appropriate number and species of trees, and the appropriate spacing between them in order to achieve the desired rates of growth, and the desired type and quality of wood outputs. The stands will become more uniform in size since the cutting units which created them are limited in size by forest management regulations. In addition, the trees within them will be more uniform in size, shape, and distribution compared to the majority of the existing stands.

As these stands mature, they should contain less evidence of damage caused by disease, insects, or animals. Since they will be harvested closer to the age at which they achieve their maximum average rate of growth (CMAI), which is a younger more vigorous age than most of our existing mature and overmature stands, there will be less evidence of decadence. However, the harvested trees will also be smaller.

Finally, more of the total wood fiber in the trees will be utilized if the markets exist for it. Much of the residue which we currently pile and burn will be used for fuel or other products which can be made from small material. The amount of material left in the woods, including standing snags (and future snag replacement trees) and down logs, will be determined in accordance with the appropriate standards and guidelines, and management direction for the area.

Wildlife

Habitat will be managed for bald eagles, northern spotted owls, and osprey. Nesting habitat and foraging areas will be protected and enhanced. Suitable nesting sites will be provided on a continuing basis. Old growth stands with large trees will be emphasized for bald eagles and northern spotted owls. Osprey habitat will contain numerous trees and snags suitable for nesting. Stands will be managed so that suitable nesting sites are available on a continuing basis and spaced to minimize territorial competition. Human disturbance will be minimal during the nesting season.

Important deer winter and transition ranges will be managed to achieve a better arrangement of cover and forage. Cover associated with timber will consist of stands which vary in size (usually not exceeding 40 acres) and which are fairly dense (crown closures exceeding 40 percent). Such stands will have intermingled openings with a variety of grasses, forbs, and shrubs available for forage. The forage base would be maintained by prescribed burning. For the remainder of the Forest, cover and forage would be the result of other activities as directed by the Management Area prescriptions.

Habitat for species associated with mature and old growth tree stands will be provided for through stands managed to provide a desired habitat condition for a certain species or stands that are not managed but contain the desired conditions. Such areas will be scattered throughout the Forest.

Habitat for species utilizing dead and or downed trees will be provided throughout the Forest. Snags and trees for replaced snags will be left in areas where timber harvesting is occurring, either as individual trees which are uniformly distributed or in small clusters. Dead logs will be left on the ground for species utilizing such material as habitat and for providing a niche for the continuation of nutrient cycling.

Fish habitat would be inventoried and a habitat improvement program would be developed. Riparian zones would be managed to maintain water quality and a diverse vegetative condition for the rich variety of wildlife utilizing riparian habitats.

Range

Better quality forage would be available on range lands. Livestock use of riparian zones would be intermittent. Allotments would be under some form of grazing system that would provide for protection of plant vigor, minimize conflicts with other resources, and construction of range improvements would be cost effective.

Energy

A stable supply of fuelwood would be available for household use. Wood would be accessible and reasonably priced. Fiber in the form of slash fr logging and thinning would also be available a fuel. The Forest would work with newly develop markets designed around using wood as an en source.

On suitable sites, electrical energy would be pr duced from geothermal resources. Power plant associated transmission lines would be located have minimal impacts on other resources.

Soils

Soils would remain productive, except where facilities were located. Erosion, compaction, an displacement would be minimal.

Water

Water quality would remain high with quantity i creased slightly. A monitoring program would b effect to ensure that water quality standards we met.

The Bend Municipal Watershed would be mana to provide timber stands that were healthy and growing at a moderate rate. Timber stands will a condition which provide a minimum threat for catastrophic fire and which would retard insect festation. Existing water quality would be maintained. Stream channels would be stable throug the watershed. Access into the watershed for ac ministrative and dispersed recreational activities would be allowed at a level which is compatible with the water quality goals of the Management Area.

Other

Areas will be provided where natural features ar preserved for scientific purposes and natural pr esses are allowed to dominate. Such areas will included in the Research Natural Area program which provides for:

Baseline areas against which effects of huma activities can be measured.

Sites for study of natural processes in undist ed ecosystems.

Gene pool preserves for all types of organisr

The Pringle Falls Experimental Forest is within the Forest boundary and is administered by the Pacific Northwest Forest and Range Experiment Station. The Experimental Forest serves as a field laboratory for research. Experiments will evaluate the effects of silvicultural practices on growth and yield of ponderosa and lodgepole pine. The effects of harvesting on soil moisture and other resources are also evaluated. The role of fire in natural ecosystems would also be investigated.

Forest Management Objectives

Proposed Outputs

Table 4-1 displays the projected outputs and activities to meet the previously stated goals and desired future condition.

The average annual scheduled outputs and activities which are planned, may not always be accomplished in any given year. In addition to budgets, personnel ceilings could affect accomplishment of outputs and activities. Adjustments in outputs and activities could vary by as much as 10 percent from the average annual outputs planned. Should appropriated budgets or personnel vary significantly from the planned needs, the necessary adjustments in outputs and activities will be evaluated to determine whether revision of the Plan is necessary.

Resource Summaries

This section contains information on the schedule of activities that will be necessary to produce the outputs and effects displayed in Table 4-1. These planned activities will become the foundation for developing the annual program of work and the Forest budget. It also provides some information necessary for project implementation regarding the allowable sale quantity, planned sale and harvesting methods, and a summary of land suitability. Table 4-2 below displays the accounting of acres within the Deschutes National Forest boundary by ownership, forested versus non-forested lands, and lands suited versus not suited for timber harvesting. There are a total of 1,868.2 thousand acres of land within the Forest boundary. Of these, 1,620.4 thousand are National Forest land. From these, water bodies, non-forested acres, and lands developed for non-forest uses were subtracted in order to arrive at the total 1,367.3 thousand acres of forested lands within the Forest boundary. Finally, 218.6 thousand acres were withdrawn from the suitable and available commercial forest land base either because of their designations as Wilderness, Research Natural Areas, Experimental Forest, or Oregon Csacade Recreation Area, or due to the difficulty and uncertainty of regenerating and growing timber on them. This resulted in a total of 1,148.7 thousand acres of tentatively suitable forested lands on the Deschutes National Forest which were available to prescriptions permitting scheduled timber harvesting during the development of the Forest Plan. This compares to the 1,272.0 thousand acres of forested lands determined to be tentatively suitable and available for scheduled timber harvesting under the amended 1974 Timber Management Plan.

TABLE 4-1 AVERAGE ANNUAL QUANTIFIABLE RESOURCE OUTPUTS

Outputs	Unit of Measure	Planned 1987	Planned 1990	Potential 2000	Potential 2010	Potential 2020	Potentia 2030
Developed Recreation Use	MRVD's[1]	1,421	1,421	1,727	2,068	2,483	2,770
Non-Wilderness Dispersed Recreation Use							
Roaded	MRVD's	1,417	1,417	1,688	1,829	2,005	2,02
Unroaded	MRVD's	132	132	161	177	192	29
Wilderness Use	MRVD's	77	77	94	115	140	17
Trail Construction/ Reconstruction	Miles	5	5	5	5	5	
Developed Site Construction/ Reconstruction	GG Units	65	65	65	65	65	6
Visual Quality Objectives Preservation	Acres	232,137 for all decades					
Retention	Acres	126,462for all decades					
Partial Retention	Acres	218,090 for all decades					
Modification/Max.Mod.	Acres	1,043,722 for all decades					
Wildlife and Fish Use	M WFUD's3	22.2	22.2	30.8	37.4	45.5	53
Management Indicator Species							
Bald Eagles	Pairs	20	20	20	30	35	
Northern Spotted Owls	Pairs	10	10	10	10	10	
Osprey	Pairs	125	125	125	110	100	
Goshawk	Pairs	120	120	65	70	65	
Northern 3-Toed Woodpecker	Pairs	2,440	2,440	1,020	1,050	1,050	1,4
Pine Marten	Pairs	1,550	1,550	1,285	1,285	1,285	1,3
Mule Deer	Numbers	20,300	20,300	23,300	24,800	24,800	25,9
Elk	Numbers	1,500	1,500	1,500	1,500	1,500	1,5
Woodpeckers	% of Potential Population	60%	60%	60%	60%	60%	60
Resident Trout	See Explanation	Limited data available on fish habitat. Habitat conditions generally good. Standards a Guidelines developed to continue to protect fish habitat.					
Wolverine and Peregrine Falcon	See Explanation	Occasional sightings of these species. Standards and Guidelines developed to addres habitat if species are confirmed to be present.					

TABLE 4-1 AVERAGE ANNUAL QUANTIFIABLE RESOURCE OUTPUTS

Outputs	Unit of Measure	Planned 1987	Planned 1990	Potential 2000	Potential 2010	Potential 2020	Potential 2030
Great Blue Heron	See Explanation	Approximately 100 pairs are present. Rookeries (nest trees) are protected by Standards and Guidelines.					
Wildlife Habitat Improv.	M Acre Equivalents[4]	27.0	27.0	27.0	27.0	27.0	27.0
Range--Permitted Grazing	MAUM's[5]	29	32	36	36	36	45
Timber Offered:	Million BF[6]						
Regulated		227.8	202.3	202.3	208.6	206.4	232.5
Unregulated		23.3	23.3	19.8	16.1	22.0	21.9
Total		225.6	225.6	228.4	222.5	254.5	249.7
Timber Offered: Regulated	Million CF[7]	46.6	46.6	44.3	42.1	41.9	41.9
Unregulated		5.0	5.0	4.3	3.5	4.8	4.8
Total		51.6	51.6	48.6	45.6	46.7	46.7
Regulated Timber Offered by Working Group Mix Ponderosa Pine		15.1	15.1	12.8	32.6	28.6	21.3
Lodgepole Pine		22.9	22.9	18.4	6.7	0.2	0.2
Mixed Conifer		8.5	8.5	12.4	2.8	10.2	17.4
Mountain Hemlock		0.0	0.0	0.7	0.0	2.3	3.0
Personal Use Fuel Wood	M Cords	60	60	60	60	60	60
Reforestation	M Acres/yr	16.1	16.3	11.3	11.4	9.4	11.1
Timber Stand Improvement	M Acres/yr	13.0	13.0	9.7	15.4	15.2	14.8
Long-Run Sustained Yield	Million CF	39.5	39.5	39.5	39.5	39.5	39.5
Timber Growth	Million CF	13.5	13.5	10.0	25.6	44.0	43.1
Water Yield	M Acre Feet	3.9	3.9	2.6	2.0	2.1	2.5
Soil	Risk Index[8]	15.0	15.0	11.0	6.2	12.4	10.5
Potential Geothermal Leasing	M Acres						
High Potential		100.0 in all decades					
Moderate Potential		468.8 in all decades					
Low Potential		400.1 in all decades					
Fire Management Effectiveness Index	$/M Protected Acres	2,696	2,696	2,640	2,764	2,750	2,594
Arterial and Collector Road Construction/ Reconstruction	Miles	60	60	57	50	38	47

TABLE 4-1 AVERAGE ANNUAL QUANTIFIABLE RESOURCE OUTPUTS

Outputs	Unit of Measure	Planned 1987	Planned 1990	Potential 2000	Potential 2010	Potential 2020	Potential 2030
Timber Purchaser Road Construction/ Reconstruction	Miles	53	53	49	42	29	37
Roads Subject to Highway Safety Act	Miles	1,450	1,470	1,501	1,561	1,611	1,680
High Clearance Vehicle Only	Miles	6,250	6,230	6,255	6,294	6,292	6,370
Fuel Treatment	Thousands of Acres	28.5	28.5	23.1	18.0	27.0	25.9
Operational Costs	Million $	9.4	9.4	9.5	9.6	10.0	10.4
Capital Investment Costs	Million $	11.2	11.2	10.1	10.3	10.0	11.4
Total- National Forest System Allocated	Million $	0	0	0	0	0	0
Appropriated	Million $	20.6	20.6	19.6	19.9	20.0	21.8
Returns to Government	Million $	26.0	27.1	30.7	53.8	54.3	52.5
Payments to Counties	Million $	6.5	6.8	7.7	13.4	13.6	13.1
Lands Tentatively Suitable for Timber Production	M Acres	1,148.7	1,148.7	1,148.7	1,148.7	1,148.7	1,148.7
Acres Available for Specific Resource Uses Timber Harvest	M Acres	1,017.0	1,017.0	1,017.0	1,017.0	1,017.0	1,017.0
Lands Suitable & Appropriate for Regulated/Programmed Timber Harvesting	M Acres	1,009.3	1,009.3	1,009.3	1,009.3	1,009.3	1,009.3
Lands Suitable & Appropriate for Regulated/Programmed Timber Harvesting by Yield Category	M Acres						
Full Yield		952.1	952.1	952.1	952.1	952.1	952.1
50-99% of Full Yield		57.2	57.2	57.2	57.2	57.2	57.2
1-49% of Full Yield		0.0	0.0	0.0	0.0	0.0	0.0
Tentatively Scheduled Timber Harvest	M Acres						
Clearcut		5.5	5.5	4.4	8.4	7.5	9.0
Shelterwood		10.5	10.5	6.8	2.9	1.7	1.3
Selection		0.1	0.1	0.1	0.1	0.1	0.1
Overstory Removal		5.3	5.3	4.0	1.3	0.0	0.7
Commercial Thin		4.1	4.1	4.5	1.3	13.6	11.8
TOTAL		25.5	25.5	19.8	14.0	23.0	22.9

Table 4-2 Determination of Lands Suitable for Timber Production (M Acres)

I. Total National Forest Area		1,868.2
A. Less Other Ownerships	247.8	
II. Net National Forest Area		1,620.4
A. Water	36.1	
B. Non-Forest (not stocked with 10 percent tree cover)	206.4	
C. Developed for non-Forest use (crops, improved pasture, residential, administrative areas, improved roads, power-line clearings)	10.6	
Total Non-Forested	253.1	
III. Forested Lands		1,367.3
A. Withdrawn from Timber Production (36 CFR 219.14(a)(4))		
1. Wilderness	59.5	
2. Research Natural Areas and Experimental Forest	12.7	
3. Other (Oregon Cascade Recreation Area)	40.9	
B. Lands Growing less than 20 Ft.3/ac/yr		
1. Lands on which harvest cannot be recovered, i.e., cliffs	0.0	
2. Lands on which further analysis is unnecessary (low site)	18.1	
C. Irreversible Resource Damage (36 CFR 219.14(a)(2))	0.0	
D. Regeneration Difficulty (219.14(a)(3))	87.4	
Total Unsuitable Forested Lands	218.6	
IV. Total Nonsuitable Lands (Both Forested & Non-Forested)		471.7
V. Tentatively Suitable Forest Land		
A. Separate Suitability Component		
1. 20 ft.3	0.0	

2. Regeneration Difficulty	0.0	
B. Regular Component	1,148.7	
VI. Total Tentatively Suitable Forest Land		1,148.7[1]
VII. Suitable Land Summary Approved For Forest Planning Prior to Regulations of Sept. 30, 1982, and the Chief's letter of July 15, 1983		1,184.1
VIII. Land Status Under Current TM Plan		1,272.0[2]

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[1] Decrease from pre 1982 acres is primarily due to the Oregon Wilderness Bill of 1984. Calculated by subtracting total unsuitable forested and non-forested lands from net National Forest area.

[2] Lands classified not suited because of regeneration difficulty and the Oregon Wilderness Bill of 1984 account for the reduction from the 1974 TM plan.

Table 4-2 shows that there are 1,367.3 thousand acres of forested land on the Deschutes National Forest. It also indicates that of these, 218.6 thousand acres are classified as unsuitable forested lands for various reasons. Table 4-3a below presents a breakdown of the suitable and unsuitable forested acres by timber productivity classes.

Table 4-3a Productivity Classification of Suitable and Unsuitable Forested Lands

Potential Growth (CF/ACRE/YEAR)	Suitable Forested Lands (M Acres)	Unsuitable Forested Lands (M Acres)
Less Than 20	139.8	24.3
20 - 49	733.6	131.2
50 - 84	203.2	59.4
85 - 119	50.4	3.5
120 - 164	21.7	-
165 - 224	-	.2
225+	-	-
Totals	**1148.7**	**218.6**

The 218.6 thousand acres of forested lands shown to be unsuitable in Table 4-2 were withdrawn from the suitable and available forested land base for which the FORPLAN model could schedule timber harvesting activities. These included 113.1 thousand acres of forested lands which were withdrawn due to their Management Area designations of either Wilderness, Research Natural Areas, Experimental Forest, or Oregon Cascade Recreation Area. In addition to these, 105.5 thousand acres were withdrawn from various other Management Areas because of the difficulty and uncertainty of regenerating and growing timber on them. Again, these acres were not available to the FORPLAN model for scheduling timber harvesting activities. Of the tentatively suitable forest land included in the FORPLAN model, it determined that an additional 8.6 thousand acres were not appropriate for programmed timber harvesting in the Forest Plan for cost efficiency reasons. Table 4-3b below displays the breakdown of unsuitable lands by Management Area.

Table 4-3b Unsuitable Forested Lands by Management Area (M Acres)

Management Area	Unsuitable Due to Mgmt. Area Designation	Unsuitable Due to Poor Growth & Regen.	Unsuitable Due to Poor Cost Efficiency
Wilderness	59.5		
RNA & Exp. Forest	12.7		
Ore. Cascade Rec. Area	40.9		
General Forest		27.4	5.6
Deer Habitat		60.3	-
Scenic Views		6.8	3.0
Intensive Recreation		3.5	
Undeveloped Recreation		4.0	
Winter Recreation		2.4	
Bald Eagle		1.1	
Totals	**113.1**	**105.5**	**8.6**

The remaining suitable and available forested lands were used by the FORPLAN model to calculate the harvest levels for the proposed Forest Plan. Based on the relationship between the existing standing inventory and the potential to grow wood fiber in the future under managed conditions the Deschutes National Forest was characterized as a surplus inventory forest in the FORPLAN harvest scheduling model. In simple terms, this means that there is more mature and over mature standing inventory on the Forest than is needed to harvest at the long run sustained yield level on a nondeclining flow basis into perpetuity. This also implies that for a nondeclining flow harvest schedule for which the harvest level in the last decade of the planning horizon must be less than or equal to the long run sustained yield, that the long run sustained yield level actually constrains, or holds down, the first decade allowable sale quantity.

This relationship is graphically depicted in Figure II below. It portrays the departure and base sales schedules as they relate to the long-term sustained yield. The long-term sustained yield is 39.5 MMCF per year. The nondeclining base sales schedule starts at 39.5 MMCF in the first decade and stays at that level throughout the 15 decade harvest scheduling planning horizon. In effect, the harvest levels in the base sales schedule are held down by the long run sustained yield constraints described above.

The departure sales schedule, on the other hand, starts higher than the long-run sustained yield by stacking the surplus inventory volume on top of the base sales schedule during the first five decades, and then dropping down to the long run sustained yield level in 6th decade and maintaining this level throughout the remainder of the planning horizon. Under the departure sales schedule, the allowable sale quantity starts at 46.6 MMCF per year during the first decade and declines at a rate of 5 percent and declines at a rate of 5 percent for the next two decades to a level of 42.1 MMCF. It remains near this level through the 5th decade in order to satisfy the Resource Planning Act (RPA) timber harvesting targets assigned to the Forest, and then drops down to the long run sustained yield level of 39.5 MMCF per year where it remains.

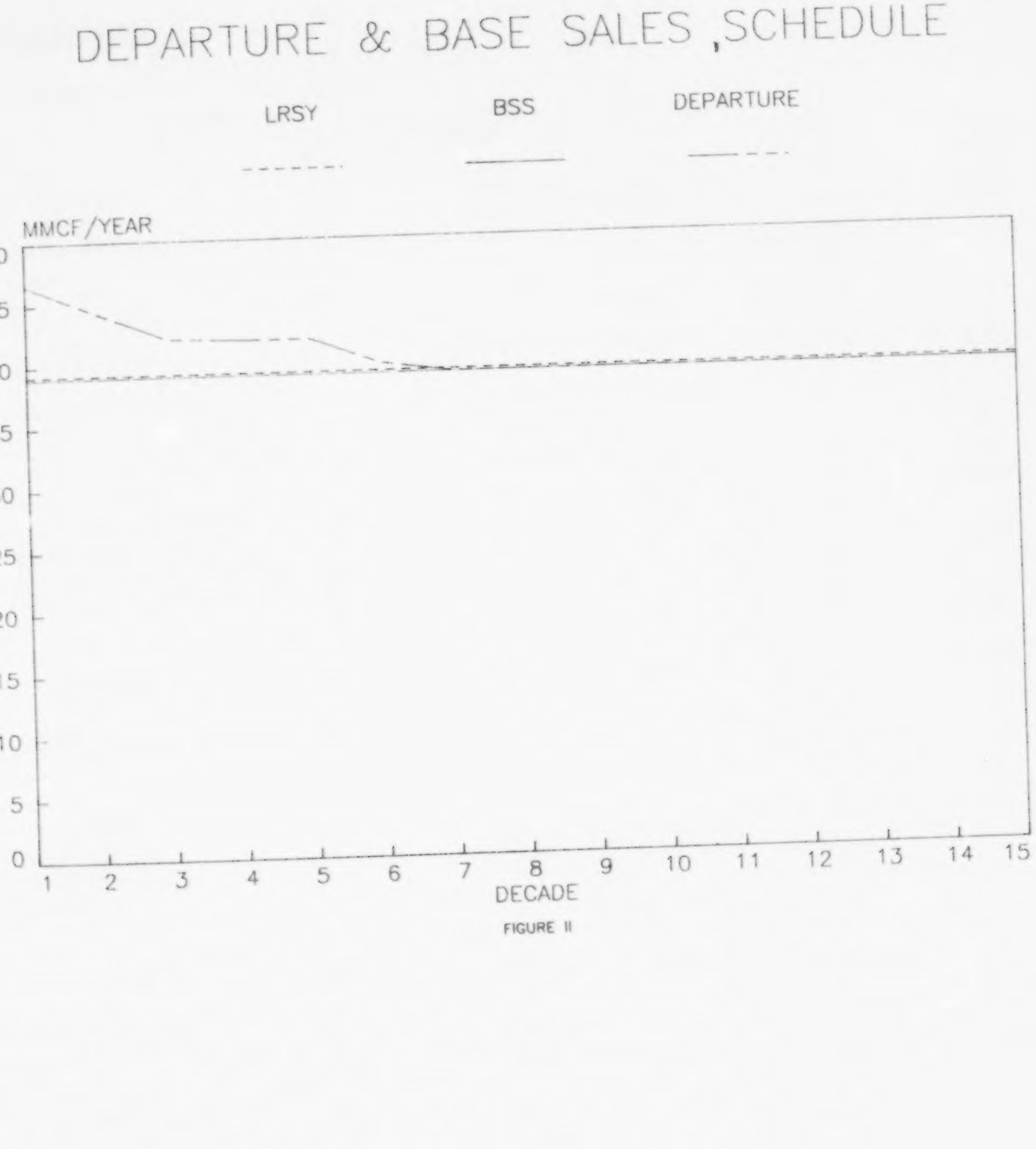
Figure III displays the departure sales schedule in relationship to the suitable and available standing inventory, and the total net growth throughout the 150 year harvest schedule planning horizon. It indicates that during the first 5 decades much of the surplus standing inventory is liquidated through the regeneration harvests of even-aged mature stands, and overstory removals of the mature components in two-storied stands. As depicted in the graph, once the surplus inventory is liquidated during the first four or five decades, the inventory levels stabilize for the remainder of the planning horizon somewhere between 1200 MMCF and 1400 MMCF.

As the mature and over mature stands are converted to younger more vigorous managed stands, total net growth increases to levels slightly above the departure sales schedule. By the year 2030, average annual net growth is 43.1 MMCF as compared to the long-run sustained yield of 39.5 MMCF. Average annual net growth for the years 2030 through 2130 is 40.1 MMCF. Therefore, the growth rate is better than 90 percent of the long-term sustained yield by the year 2030 without requiring any additional actions or costs, and is consistent with the Chief's revised policy regarding growth as expressed in his letter dated March 31, 1981.

The departure sale schedule does not directly reflect net growth because many of the managed stands which are responsible for the increase in net growth are not available for final harvesting until late in the 150-year planning horizon. Roughly speaking, most of the volume during the first five or six decades is from the slower growing, mature and over-mature, existing inventory. Much of the volume in the mid decades of the planning horizon comes from commercial thinnings in the second growth stands. Finally, from the eighth through the last decade of the planning horizon, harvest volumes come from a mix of regeneration and intermediate cuts in the managed stands.

Planned and Proposed Timber Harvesting Activities and Sale Programs for the First Two Decades

Table 4-4a displays the proposed average annual allowable sale quantity and schedule of timber harvesting activities by Management Area for the first two decades. A more detailed presentation of the year by year planned sales, harvesting activities, and chargeable volumes by Management Area can be found in Appendix 5. However, it should be noted that the estimates of acreages and volumes associated with these individual planned timber sales are tentative, and will most likely need to be adjusted based upon final field locations and measurements.


DEPARTURE & BASE SALES ,SCHEDULE
LRSY
BSS
DEPARTURE
MMCF/YEAR
50
45
40
35
30
25
20
15
10
5
0
1
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15
DECADE

FIGURE II

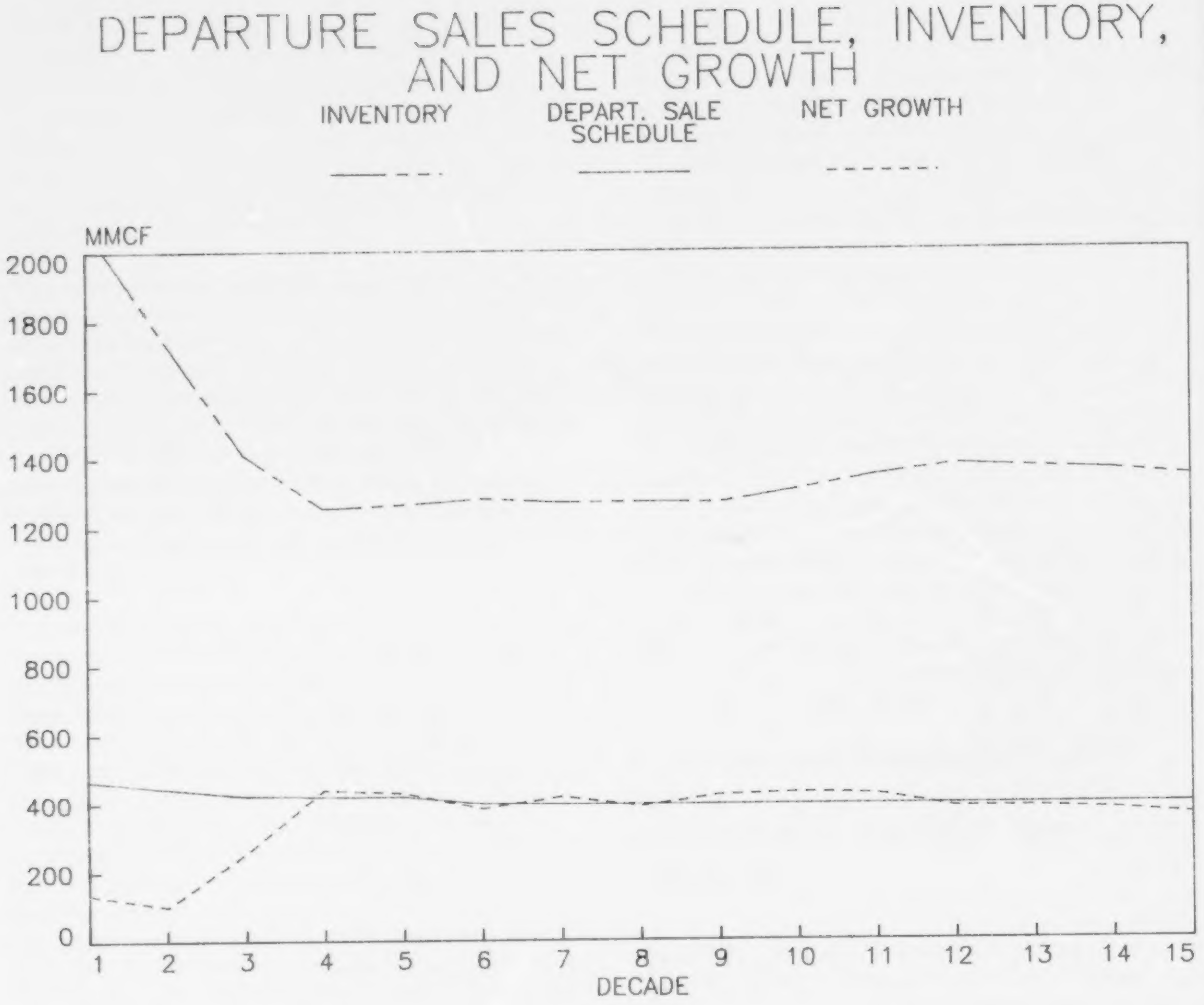
DEPARTURE SALES SCHEDULE, INVENTORY, AND NET GROWTH
INVENTORY
DEPART. SALE SCHEDULE
NET GROWTH
MMCF
2000
1800
1600
1400
1200
1000
800
600
400
200
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
DECADE

FIGURE III

Table 4-4a Projected Average Annual Timber Harvesting Activities and Chargeable Volumes by Management Area for the First Two Decades[1]

	Planned Activities For The First Decade			Potential Activities For The Second Decade	
	Acres	**MMCF/YR**	**MMBF/YR**	**M Acres**	**MMCF/YR**
Mgmt. Area/Activities					
General Forest:					
Clearcut	3.86	10.30	48.76	3.84	15.09
Shelterwood	20.32	17.78	58.17	10.42	11.62
Overstory Removal	4.86	9.89	50.55	3.94	9.28
Commercial Thinning	2.17	1.09	5.26	3.72	1.88
Precommercial Thinning	4.90			4.09	
Reforestation	14.02			9.05	
Release	1.62			.44	
General Forest Totals	**51.75**	**39.05**	**162.74**	**35.50**	**37.87**
Scenic Views:					
Clearcut	1.55	5.14	27.70	.42	1.03
Shelterwood	.78	.58	2.13	2.78	3.82
Overstory Removal	.40	.79	4.02	.08	.17
Commercial Thinning	.78	.51	2.64	.77	.33
Precommercial Thinning	1.53			1.17	
Reforestation	1.94			1.81	
Release	.63			.68	
Scenic Views Totals	**7.61**	**7.02**	**36.49**	**7.71**	**5.35**
Deer Habitat:					
Clearcut				.38	.73
Shelterwood					
Overstory Removal					
Commercial Thinning	1.10	.23	1.02		
Precommercial Thinning	1.30			1.44	
Reforestation				.38	
Release	.18				
Deer Habitat Totals	**2.58**	**.23**	**1.02**	**2.20**	**.73**
Eagle and Owl:					
Selection	.09	.33	1.83	.09	.36
Overstory Removal					
Commercial Thinning	.03	.02	.07		
Precommercial Tninning	.07			.24	
Reforestation	.09			.09	
Release	.16			.05	

	Planned Activities For The First Decade			Potential Activities For The Second Decade	
	Acres	MMCF/YR	MMBF/YR	M Acres	MMCF/Y
Eagle & Owl Totals	**.44**	**.35**	**1.90**	**.47**	**.3**
All Management Areas:					
Clearcut	5.41	15.44	76.46	4.64	16.8
Shelterwood	21.11	18.36	60.30	13.20	15.4
Overstory Removal	5.26	10.68	54.57	4.02	9.4
Selection	.09	.33	1.83	.09	.3
Commercial Thinning	4.08	1.85	8.99	4.49	2.2
Precommercial Thinning	7.80			6.94	
Reforestation	16.05			11.33	
Release	2.59			1.17	
All Mgmt. Areas Totals	**62.38**	**46.66**	**202.15**	**45.88**	**44.3**

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[1] Except for the acres of shelterwood, all acre and volume figures in this table match those in the FORPLAN report for the Preferred Alternative. The shelterwood acres in this table are exactly twice the number of those found in the FORPLAN report to reflect that in reality, these acres will be entered twice per decade in order to remove the projected volumes for both the regen and removal cuts. FORPLAN reports this as one acre treated per decade.

During the first decade, the average annual allowable sale quantitiy is 46.66 MMCF. Of this total, it is estimated that about 84 percent, or 39.06 MMCF, will come from the General Forest Management Area, and 15 percent, or 7.02 MMCF, will come from the Scenic Views Management Area. Most of the harvesting activities will be comprised of even-aged silvicultural treatments such as clearcuts, shelterwoods, and seedtrees. This is particularly true in the lodgepole pine and mixed conifer working groups. In fact, it is estimated that approximately 80 percent of the mature lodgepole pine harvesting will occur in plant communities where natural regeneration methods are viable options. Of course, lodgepole pine is found in all of the Management Areas, and the relevant prescriptions for these Management Areas would dictate how sales are planned and implemented. In the ponderosa pine working group, the emphasis is upon removing the mature and overmature components from two-storied stands, and managing the understories for the next crop of trees.

The acres by harvest cutting methods displayed in the above table are estimates. The determination of cutting methods was based on criteria in the Regional Guide for the Pacific Northwest Region and criteria in the National Forest Management Act regulations. Following are the criteria that were used. In addition to these, site specific conditions must be considered before a final harvest method can be determined. For a more detailed discussion of the determination of harvest cutting methods, refer to Appendix I in the Draft EIS.

- The selected method must produce a volume of marketable trees that meet the utilization standards and are designated for harvest.
- The selected method must use available and acceptable logging methods.
- The selected method must be capable of meeting special management objectives.
- The selected method must permit the control of vegetation to establish desired species composition, density and rates of growth.
- The selected method must promote a stand structure and species composition which minimizes risks from insects, disease, and wildfire.
- The selected method must ensure that lands can be adequately restocked.
- The selected must be practical and ecomonical in terms of transportation, harvesting, preparation and administration of timber sales.

In addition, no harvest cutting method will be selected solely because it resulted in the greatest dollar return or provided the highest output of timber, or which would permanently reduce site productivity, or could not ensure conservation of the water and soil resources.

Table 4-4b presents a breakdown of the allowable sale quantity for the first two decades by working two decades by working group. About 49 percent (in terms of cubic feet) of the first decade allowable sale quantity is planned to come from the lodgepole pine working group, 32 percent from the ponderosa pine working group, and the remainder from mixed conifer. Of course, the emphasis on lodgepole pine is in response to the mountain pine beetle epidemic. The intent of the proposed Forest Plan is to convert as much as possible of the mature and over-mature lodgepole to managed stands over the next 15 years. To accomplish this, approximately 132,000 acres are scheduled for conversion during the first decade. Probably about half the wood harvested from these acres will be live green material. In the second decade, an additional 81,000 acres is proposed for conversion. It is estimated that a lesser proportion of this material will still be live green. Of course, the success of this massive conversion program depends on the strength of the wood products markets. Again, the intent of the Plan is to get new stands established as soon as possible. If the market opportunities arise, we would attempt to utilize more of the lodgepole pine in the first decade with less remaining in the second decade.

While ponderosa pine comprises only about 32 percent of the total first decade allowable sale quantity, the proposed sale volume from this working group is only about 10 percent less than what our current Timber Management Plan offers. In effect, the departure harvest schedule permits the Forest to accelerate the harvesting of lodgepole pine while maintaining the ponderosa pine and associated species volumes near recent historical programmed sale levels. As mentioned above, more detail on the first decade planned timber sale program is available in Appendix 5.

Table 4-4b Proposed Average Annual Allowable Sale Quantity by Working Group for the First Two Decades

	Planned First Decade			Potential Second Decade		
Working Group	**M Acres**	**MMCF/YR**	**MMBF/YR**	**M Acres**	**MMCF/YR**	**MMBF/YR**
Lodgepole Pine	13.2	23.0	75.2	8.1	18.4	65.3
Ponderosa Pine	9.7	15.1	77.8	9.1	12.8	65.0
Mixed Conifer	2.5	8.5	49.2	2.6	12.4	75.1
Mountain Hemlock	-	-	-	.1	.7	3.2
Total of all WG	**25.4**	**46.6**	**202.2**	**19.9**	**44.3**	**208.6**

The proposed Forest Plan is intended to cover a 10- to 15-year period of time. Should the life of the Plan extend beyond ten years, the Forest would then begin to implement the proposed actions associated with the second decade as portrayed in Tables 4-4a and 4-4b. The average annual allowable sale quantity in the second decade is 44.3 MMCF, 5 percent less than that planned for the first decade. If the markets will bear it, the remaining acres of mature and over-mature lodgepole pine will be converted to managed stands during the first five years of this decade. After that, the sale program would swing back to a predominately ponderosa pine and associated species mix.

The volumes discussed in the above paragraphs and displayed in Table 4-4a and Table 4-4b were calculated with the FORPLAN harvest scheduling model. As those volumes are harvested, they are charged against the allowable sale quantity. In addition to live green wood, lodgepole salvage and firewood volumes are also considered chargeable since they were included in the yield tables for this working group. However, timber may also be harvested from other Management Areas and/or components of the timber inventory which were not included in the FORPLAN allowable sale quantity calculations. These volumes are termed as non-chargeable. There is no specific schedule of activities planned in which to produce these anticipated volumes. Table 4-4c below displays the estimated non-chargeable volumes by source for the first two decades. Keep in mind that the 5.0 MMCF/Yr displayed for the first decade and 4.25 MMCF/Yr for the second decade are anticipated volumes over and above the planned allowable sale quantity volumes.

Summary of Scheduled Activities for Resources Other Than Timber

This section describes activities that are not specifically associated with the management of tree stands. It outlines activities in addition to those resulting in the manipulation of trees which are necessary to meet the wide variety of goals, objectives, and outputs necessary to implement the Proposed Forest Plan.

Table 4-4c Estimated Average Annual Non-Chargeable Volumes for the First Two Decades

Management Area/Inventory Component	**Planned First Decade MMCF/YR**	**Potential Second Decade MMCF/YR**
Experimental Forest Mgmt. Area	.30	.30
Intensive Recreation Mgmt. Area	.83	.83
Old Growth Mgmt. Area	.44	.44
Defect/Cull	3.43	2.68
Total Non-Chargeable	**5.00**	**4.25**

Recreation

The following Table 4-5 shows the average annual activities necessary to provide the recreation opportunity and conditions resulting from the Preferred Alternative.

Table 4-5 Average Annual Recreation Activities

Activity	Unit of Measure	Number
Campground Construction	Units	65
Developed Site Operation	PAOT/Days	
Full Maintenance		
Reduced Maintenance		
Trail Construction/ Reconstruction	Miles	5
Cultural Resource Surveys	Acres	85,000

Table 4-6 shows the rivers that are recommended for classification under the Wild and Scenic Rivers Act.

Table 4-6 Rivers Recommended for Classification

River	Location	Recommended Classification
Deschutes	Spring River to north Forest boundry	Recreation
Metolius	Source to Confluence of Jefferson Creek	Recreation

During implementation of the approved Plan, action will be taken to formally designate these river lengths to the recommended classifications. At that time, an EIS will be prepared which will contain a detailed analysis and evaluation of consequences and effects of formal classification. These river lengths will receive protection needed to preserve the values that make them suitable for classification until the detailed analysis is completed.

The Newberry Crater will remain an established National Natural Landmark. None of the other eight inventoried potential landmarks will be designated as such. Prescriptions and management direction for Management Areas which include all potential landmarks but one will provide the same or better protection, management, and interpretation than the National Natural Landmark status would. The Management Area prescription for the Sisters-McKenzie Transect may not provide total protection.

Another important dimension of recreation in the Central Oregon area is the destination resorts which are located near the Forest and are heavily dependent upon the recreational opportunities associated with the Forest. Recognizing this, the Forest, working with the various counties, will analyze any proposal and determine their compatability with National Forest objectives. When conflicts are identified, the Forest will work with the counties to try to eliminate or mitigate conflicts. Large destination resorts, as defined by the Deschutes County Comprehensive Plan, will not be located on National Forest Land, but necessary support facilities such as access roads and utility corridors will be evaluated on a case-by-case basis through the environmental analysis process. The general direction will be to disallow support facilities on National Forest lands if private lands are available and suitable.

Wildlife

The Forest will provide and manage habitat to support the following estimated population levels as shown in Table 4-7.

Table 4-7 Wildlife Population Levels

Species	Population Level
Woodpeckers	60% of the potential population
Mule Deer:	
Summer population levels	29,900
Winter population levels	25,900
Elk	1500-2000
Ospreys	60-80 pairs
Bald Eagles	35-45 pairs
Goshawks	25-30 pairs
Spotted Owls	10 pairs
Great Blue Herons	75-100 pairs

Table 4-8 shows the average annual activities that are planned to meet the above mentioned population levels.

Table 4-8 Average Annual Wildlife Habitat Improvement Activities

Activity	Unit of Measure	Amount
Prescribed Burning	Acres	5,000
Snag Management	Acres	21,000
Threatened and Sensitive Species Habitat Management	Acres	120
Watchable Wildlife Habitat Improvement	Structures	50
Waterfowl Habitat Improvement	Acres	10
Fish Habitat Inventories (Streams)	Miles	25
Fish Habitat Inventories (Lakes)	Number	5
Fish Habitat Improvement	Structures	20

The prescribed burning is primarily associated with prescriptions to manage the deer winter and transition ranges. Some burning is also associated with improvement of forage on summer ranges and for non-game species. The priority for fish habitat is to conduct the inventories and base the amount of improvement work on the results of the inventory. The number of structures for fish habitat improvement are estimates and subject to change.

Range

Range management will center largely on administering existing permits and allotments. To increase the capacity and improve range conditions, some additional activities are necessary. In addition to forage increased through timber harvesting, some additional improvements will be necessary and the activities are listed in Table 4-9.

Table 4-9 Range Improvement Activities

Activity	Unit of Measure	Amount
Seeding	Acres	500
Prescribed Burning	Acres	1000
Fencing	Miles	10
Water Development	Structures	10

Transportation

The proposed traffic service categories for the Forest road system are shown in Table 4-10.

Table 4-10 Miles of Road by Category

Roads Subject to Highway Safety Act	1450 Miles
Roads for High Clearance Vehicles	6250 Miles

Roads of Issue

Table 4-11 shows the roads of issue and actions allowed.

Table 4-11 Roads of Issue

Road Name	Road No.	Action
Todd Lake - Three Creeks Lake	1600370 4630600	Maintain to current standard.
Irish-Taylor	4630600	Maintain to current standard.
Waldo Lake-Forest Road 5897	5897000	Improve, as needed for increased traffic volume. Pave if Needed.
Windigo Pass	6000000	Improve for increased traffic volume.

Research Natural Areas

The following RNA's will be recommended for inclusion in the Research Natural Area Program:

Cache Mountain
Cultus River
Katsuk Butte
Torrey-Charlton
Many Lakes
Wechee Butte
Mokst Butte

Land Exchange Program

Exchanging about 2,500 acres annually will be the program goal.

Chapter 4

Multiple-Use Standards and Guidelines

Following are standards and guidelines which apply to activities on the Deschutes National Forest. They guide the application of prescriptions for Management Areas. Basically there are three categories of standards and guidelines--those which apply:

- To the overall Forest program.
- To when ground disturbing and vegetative management practices occur.
- To specific uses or the extraction of Forest resources.

The types of standards and guidelines are listed below by category:

Categories of Standards and Guidelines

Category I	**Category II**	**Category III**
Overall Forest Program	**Ground Disturbing and Vegetative Management Activities**	**Specific Uses and Extraction of Forest Resources**
Human Rights	Riparian Areas (SMU's, Floodplains, Wetlands) and Fish Habitat	Special Uses
Land Adjustments	Soils	Energy--Oil & Gas
Fire & Fuels Mgt.	Wildlife	Energy--Geothermal
Transportation System Fuelwood	T.,E., & S Plant Species Timber	Minerals
Cultural Resources		
Cave Management		
Trail Management		

As necessary, as activities are planned, they will be coordinated with other Agencies such as the County Planning Boards, Oregon Department of Fish and Wildlife, Oregon State Department of Forestry, Fish and Wildlife Service, the City of Bend, the Bureau of Land Management, and the Confederated Tribes of the Warm Springs Indians.

Standards and Guidelines Applicable to the Overall Forest Program (Category I)

Human Rights

Goal

To provide all persons equal opportunity regardless of race, color, creed, sex, marital status, age, handicap, religion, or national origin.

Standards and Guidelines

The Forest lands will be managed to minimize social and administrative barriers to legitimate uses of the Forest.

The Forest will coordinate resource activities where common boundaries exist with the Confederated Tribes of the Warm Springs Indian Reservation lands.

The Forest will maintain and implement an Affirmative Action Plan.

The needs of the handicapped will be considered in employment opportunities and in the design of Forest facilities.

The Forest will conduct compliance reviews as required by Title VI of the Civil Rights Action of 1964, within standards established by the Forest Service.

Special efforts will be made to inform the general public, including minorities and the underprivileged, of benefits they are eligible to receive from Forest programs. Techniques and the media best suited to increase awareness and participation will be used.

The Forest will strive to protect and preserve for American Indians access to sites, use, and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. Appropriate management protection of these areas will be coordinated with the religious leaders of the Confederated Tribes of the Warm Springs Reservation.

Land Adjustments

Goal

To provide the optimum pattern of landownership within the National Forest considering resource goals and efficiency of managing the Forest.

Standards and Guidelines

Landownership Adjustments

Landownership adjustments involve changing ownership through (1) purchases, (2) exchanges, and (3) donations with private landowners, State and local Government agencies, and transfer with other Federal agencies.

Public and private lands in and around Deschutes National Forest have been classified and prioritized to encourage the best land pattern the Forest can seek. All lands have been placed in one of the following groups:

Group 1. These are lands where Congress has either directly or indirectly instructed the Forest Service to retain ownership and acquire nonfederal lands for a designated purpose. (Creation of a wilderness is an example of the indirect approach.)

In most situations the objective is to retain existing ownership and acquire remaining land. Acquisition of less than fee title will be considered if land management objectives can be met in that way.

Group 2. These lands are needed for a special type of management and allocated for that purpose. These land-use allocations include, but are not limited to, Special Interest Areas; unroaded areas; and recreation, visual, soils, watershed, wildlife, range, and timber.

In most situations the objective is to retain National Forest ownership and acquire private land.

Acquisition of less than fee title will be considered if land management planning objectives can be met in this way.

Group 3. These lands are in the General Forest Management Areas and are divided into four subgroups:

3-A. Consolidated areas of National Forest lands that are generally solid blocks. The contiguous blocks will not normally be breached (creating a gap destroys the consolidated character) for land adjustment unless the area is designated as a retraction area.

3-B. This includes land identified as being in deer migration routes. The integrity of the migration route will be maintained through ownership by public agencies and large timber companies or protection through county zoning regulations. National Forest lands may be retained or exchanged to large timber companies or other entities that would provide for continuation of migration routes.

3-C. This includes areas of mixed private and Federal ownership. The objective is to rearrange ownership patterns to benefit commodity production goals for public and private lands and to utilize National Forest lands to acquire higher priority lands for National Forest use.

3-D. These are isolated parcels that can best be managed by the Forest Service or some other public agency. A parcel may be transferred or exchanged to another public agency.

Group 4: These lands include small isolated tracts of National Forest land situated away from contiguous blocks of National Forest land and private lands that are managed for intensive uses such as agriculture, residential subdivision, industrial development, ditch lines, State and County highways, etc.

Federal lands in this group will normally be made available for disposal in land exchanges to acquire land in Groups 1, 2, or 3.

Private lands in this group are generally not available and will normally not be acquired by the Forest Service.

Group 5: These are lands which need more intensive study and planning before landownership decisions can be made.

Land acquisition and disposal decisions will be deferred until the needed studies have been completed.

See Appendix 1 for a tabular presentation showing acreage by group within the Management Areas. Also refer to the Land Status map.

Land Adjustment Priorities

Lands which should be acquired to meet essential National Forest management or resource conservation needs are assigned the following priority.

Priority	Land Ownership Planning Groups
Priority 1 -	Group 1 lands
Priority 2 -	Group 2 lands
Priority 3 -	Group 3 lands

National Forest lands that will be made available to use in land exchanges are assigned the following priority.

Priority	Land Ownership Planning Groups
Priority 1 -	Group 4 lands
Priority 2 -	Group 3 lands
Priority 3 -	Group 2 lands

The above guidelines should normally be followed; however, it may be necessary to deviate from this ranking to take advantage of opportunities as they arise.

Fire and Fuels Management

Goal

To provide well planned and executed fire protection and fire use programs that are cost efficient and responsive to land and resource management goals and objectives.

Standards and Guidelines

1. Wildfires that threaten life, private property, public safety, improvements, or investments shall receive aggressive suppression action.

2. Wildfires will require appropriate suppression response. Appropriate suppression response strategies are (1) confinement, (2) containment, and (3) control.

3. Annual maximum allowable burned acres by size class and intensity level, and constraints are identified for each Management Area. This identification does not mean that fires will be allowed to burn to these sizes prior to suppression. Rather, it is a tool to measure the fire suppression organizational needs as a part of an escaped fire situation analysis process.

4. In most cases when wildfires do not threaten to exceed acceptable sizes and intensities for the Management Areas, the lowest cost suppression option is appropriate.

5. If a wildfire escapes initial action and threatens to exceed established limits, an escaped fire situation analysis shall be prepared. This analysis weighs the cost of suppression against the resource potential losses. Suppression actions should be appropriate for the values threatened even on escaped fires.

6. Burning plans will be prepared in advance of ignition and approved by the appropriate line officer for each prescribed fire. Prescribed burning will conform to air quality guidelines. Burning plans will define what an escaped fire is. A fire that escapes will be declared a wildfire and an escaped fire situation analysis will be prepared.

7. Unplanned ignitions may be used as prescribed fires if (1) a prescribed fire plan has been prepared and approved and (2) the fire is burning within prescription.

   Normally, prescribed burning will be by planned ignition.

8. Levels and methods of fuels treatment will be guided by the resource objectives within the Management Area.

Transportation System

Goal

To provide safe, efficient access for the movement of people and materials involved in the use of the National Forest lands.

Standards and Guidelines

1. The transportation system needed to support resource activities in the Management Areas will be planned to serve multiple resource needs rather than individual project proposals. The Forest will be divided into Transportation Planning Units (TPU's) which will be bounded by major roads or by easily identifiable transportation barriers such as rivers or Wilderness boundaries. All resource activities must be considered. The level of resource activity, where it will occur, when it will occur, and what type of equipment will be required must be evaluated to determine the adequacy of the existing system and to indicate whether any construction or reconstruction will be necessary. The Management Area prescriptions and Standards and Guidelines will be incorporated into the TPU Planning. Traffic management needs will be considered and TPU planning will indicate which roads are unneeded and can be closed.

2. The transportation system will be built to required standards to meet the needs of the planned resource activities of the area. This standard will be such that repeated reconstru tion to upgrade any given section of the syste will be minimized during the planning period.

3. The adequacy and safety of the transportatio system will conform to the Forest Service Manuals and Handbooks. If a road does not ist at an adequate and safe standard for the traffic expected to use it, traffic can be restricted to a level where the existing road i adequate. This could eliminate the need to reconstruct the road to the standard for mixe traffic such as recreation and logging. Traffic management can also be used to control access due to structual limitations of the road limitations imposed by the resources, such a wildlife within an area.

4. Trails and helispots may be constructed in a areas unless excluded or constrained in a Management Area.

5. Transmission corridors, roads, and highways be subject to the NEPA (National Environme Policy Act) process.

Fuelwood

Goal

To provide fuelwood as a renewable energy resource for personal and commercial uses.

Standards and Guidelines

1. The Forest will make existing, created, and potential fuelwood available to the public in a manner which is compatible with other resource values. The following will be considered:

    a. Providing access to potential fuelwood or bringing the fuelwood to convenient points in timber sale or thinning areas through the utilization of appropriate timber sale contract clauses or the modification of fuels management prescriptions.

    b. Using commercial fuelwood contracts for slash disposal, thinning, and site preparation.

    c. Extending timber sale contract periods to provide for fuelwood removal before the purchaser fulfills other contractual requirements.

    d. Opening certain slash areas to fuelwood gathering prior to traditional disposal.

    e. Leaving slash as a fuelwood source for several seasons after it has been piled or rearranged to break the fuel continuity.

2. The fuelwood program should be considered as a means to meet silvicultural objectives in appropriate areas, such as low productivity lodgepole pine stands.

3. Season of year and access should be considered when implementing a fuelwood program which is responsive to public needs.

4. Fuelwood availability for public uses will be considered during preparation, administration, and post sale activities associated with timber sales.

Commercial Use

The Forest will increase emphasis on making commercial fuelwood sales available in remote areas, areas less accessible to the general public, some areas where National Forest funds are expended to make wood available, and areas where control is needed to meet environmental concerns. Examples are:

1. Contract areas with concentrations of slash where heavy equipment may be required for removal (timber sales, backlog slash, thinning areas).

2. More remote areas where the gasoline or diesel fuel consumed makes large loads more economical to haul than small loads.

3. Areas where timing or environmental constraints require special control.

4. Beetle infested green trees.

Personal Use

The following areas will be used for gathering personal firewood:

1. Areas with easy access (landings, stands of dead trees, slash piles, forest fires, etc.).

2. Areas designated and reserved for fuelwood gathering.

Cultural Resources

Goal

To provide for the protection and preservation of prehistoric and historic sites, buildings, objects, and antiquities of local, Regional, or National significance.

Standards and Guidelines

1. In compliance with applicable Federal historic preservation legislation (National Historic Preservation Act, Executive Order 11593), a professionally supervised cultural resource inventory program will be conducted on both a Forest-wide and project specific level. The surveys will be conducted according to an inventory plan and research design agreed to by the Forest Service and the State Historic Preservation Office (SHPO). Based on this data base, the Forest will develop and maintain a Forest-wide cultural resource overview that summarizes and compiles known cultural resource information.

2. Cultural resource properties located during inventory will be evaluated by a professional archaeologist/historian to determine their eligibility for listing in the National Register of Historic Places, according to the criteria of eligibility established in the National Historic Preservation Act.

3. In concert with the inventories and site evaluations, the Forest will develop the thematic National Register nominations and management plans for the various classes of prehistoric and historic resource properties found on the forest.

4. Results of project level cultural resource inventories, or the intent to carry out such inventories, will be documented through environmental analysis for the project.

   a. Cultural resource properties in conflict with ground disturbing projects will be professionally evaluated to determine site significance and to aid in determining the full range of management alternatives.

   b. Depending upon the nature of the project, the activity may be redesigned to avoid damage or disturbance to significant sites, or mitigation procedures will be developed. In some instances where avoidance is not possible, the value of the property may be conserved through a professionally acceptable data recovery program.

5. Management of cultural resources will be coordinated with other agencies including the State Historic Preservation Office and the Advisory Council on Historic Preservation, as required by Federal and State historic preservation laws and regulations. Management of the Native American cultural resources will also be appropriately coordinated with the Warm Springs and Klamath tribal groups.

6. Cultural resources may be developed for educational, scientific, or recreational purposes to the extent the integrity of the resource is maintained.

   a. Cultural resource management will ensure that properties and their records are protected to prevent unauthorized uses and to prevent degradation.

   b. The maintenance level for eligible historic structures and prehistoric sites will be based on an analysis of utility, scientific and historical value, public interest, area allocation, and available funding.

   c. Public use of cultural properties will be monitored to prevent degradation or as specified in a management plan for the property.

7. The nonrenewable, generally fragile, nature of cultural resources will be recognized and will be accordingly managed to the greatest scientific and public good.

Cave Management Standards

Goal

To preserve and protect the cave and its environment, while permitting compatible uses.

Standards and Guidelines

Caves are a resource having unique scientific, recreational, educational, cultural, and scenic values. These values can be endangered by resource management activities or in some instances by uncontrolled visitation. When caves are encountered during project activities, they will be preserved until their value can be assessed by Forest specialists. If the cave is determined to be of scientific, recreational, educational, or scenic value, a management plan addressing the goal of preserving and protecting the cave and its environment while permitting compatible uses will be developed.

Information published about caves should be coordinated with resource specialists to prevent disclosure of sensitive information.

When a cave inventory is undertaken, values such as those pertaining to geology, minerals or mining, biology, archaeology, recreation, ice speleothems, or season should be considered.

Timber

Cave roofs can be thin and present a hazard to equipment and operators. This may restrict roadwork, logging, protection, and silvicultural activities.

Alterations to cave entrances should be avoided. For example, cave entrances should not be used as disposal sites for slash, refuse, spoils, etc.

Cave sedimentation and nutrient flow into cave ecosystems can be caused by surface modifications to lands above cave passages or near cave entrances, including timber harvest and slash disposal. Generally, slash should not be burnt or the ground surface significantly disturbed within the runoff area draining into cave entrances.

Slash burning above cave passages should carefully be considered to determine its effects and the potential of sterilizing thin soils.

In some instances, it may be necessary to leave vegetative buffer areas around cave entrances to protect their microenvironments, and/or over cave passages to protect the cave's biota.

Transportation

Generally, roads should be routed away from cave entrances and avoid crossing over the cave's course. Surface drainage should not be diverted into caves.

Wildlife

Some caves within the Deschutes National Forest contain unique and fragile biologic communities which need to be protected. The following considerations will help preserve these values.

1. Maintain the integrity of the caves and their surroundings.
2. Preserve vegetation at entrances and over the course of the cave where needed.
3. Mammals and insects should be protected by minimizing human visitation as needed.
4. The use of pesticides and herbicides could cause adverse impacts to cave life and shall be avoided where water is present.
5. Gate design should allow cave dwelling wildlife to enter and leave caves.

Cultural Resources

Prehistoric habitation sites are often found in caves and represent an extremely important aspect of this Region's archaeological resource:

1. Caves suspected or known to contain prehistoric or historic values should be scientifically evaluated by an archaeologist to determine their significance.
2. Caves of prehistoric or historic importance should be protected to avoid inadvertent destruction or vandalism. The generally fragile nature and extreme archaeological value of cave sites will be recognized and will be managed to the greatest scientific and public good.

Recreation

Caves can provide many aspects of recreation but not all caves are suitable for recreational uses.

Caves generally are not overly hazardous but exceptions do exist for ill prepared individuals. In some instances hazards do exist in the form of unstable breakdown or pits.

Certain caves, cave entrances, or vicinities may be suitable for more than one type of recreation or recreation development.

Caves meeting the following conditions may not be appropriate for unrestricted or directed recreational use.

1. Caves under scientific study where recreational use could be detrimental to the project.
2. Caves requiring specialized technical equipment or skills.
3. Where the value of the cave is in jeopardy due to extreme human vandalism and protection measures are necessary.

Cave explorers should be educated in the cave safety and conservation and, where possible, directed to appropriate caving organizations for training.

Developed Sites

Caves should be developed for public use only when they can be properly interpreted and protected and should be utilized as an educational resource. Development should be considered when it would be beneficial to protecting the resource.

When development takes place, care should be taken to minimize impact on the cave. Some of t
impacts to be considered include the following:

1. Parking lot and road construction and locatio
2. Trail placement and design.
3. Sewage disposal.
4. Litter cleanup and control.
5. Visual quality.
6. Lighting design.
7. Design of interpretive programs.
8. Protection of fragile features.
9. Carrying capacity.

Dispersed Recreation

Discovering and exploring caves is an important recreational experience.

1. To help maintain this value, coordinate infor
tion or maps to be published with the variou
user groups.
2. Locate trails and signs away from high valu
caves and cave entrances to reduce increas
visitation and its impacts.

Trail System Management

Goal

To maintain the existing trail system and provide additions to meet the increasing and changing demands in dispersed recreation.

Standards and Guidelines

1. Most summer trails will be open to both horses and hikers. Some trails may be closed to horses when the cost of construction/reconstruction or maintenance would be significantly increased because of horse use.
2. Emphasis will be placed on the reconstruction of the existing summer trail system to eliminate poor or problem sections rather than on construction of new trails.
3. New summer trails are needed to meet the needs of new user groups such as those using mountain bicycles, ATV's, and motorcycles.
4. The nordic trail system needs to be expanded on all Districts to meet the needs of this rapidly growing sport.
5. The Pacific Crest National Scenic Trail (PCNST) will be managed in accordance with the direction in the "Comprehensive Management Plan for the Pacific Crest National Scenic Trail (PCNST); USDA Forest Service, Pacific Northwest Region, Portland, Oregon, January 1982." Sections of the trail within Wilderness will be managed to Wilderness standards.
6. National Recreation Trails will be managed in accordance with the direction in their establishment reports.
7. Volunteer groups and individuals will be encouraged to maintain and construct parts of the trail system.
8. The majority of snowmobile trails will be open to all terrain vehicles in winter.
9. As a general rule, the Forest will be open to Off Road Vehicle (ORV) use except where specifically closed.
10. In addition to winter use of ATV's, the Forest will provide additional opportunities for summer use of ATV's and other ORV's such as motorcycles. Part of the Forest Service road system that is not maintained for public use and that is not involved in logging operations will be open for this use.
11. The Forest will work with the State ATV committee on the planning and construction of ATV trails and facilities.
12. The Forest will work with the State Sno Park Committee on the designation of additional sno parks.
13. Motorized versus nonmotorized conflicts on winter trails will generally be resolved by restricting motorized use on nordic trails rather than by closing entire areas to motorized use.
14. Trails may be constructed in any Management Area unless specifically excluded or constrained by the Management Area direction.
15. Additional direction on trails is contained in specific Management Area prescriptions and in the various Wilderness plans.

Standards and Guidelines Applicable to Ground Disturbing and Vegetative Manipulation Activities (Category II)

Riparian Areas (Streamside Management Units, Floodplains, Wetlands) and Fish Habitat

Goal

To protect the unique and valuable characteristics of riparian areas and to protect or improve water quality and fish habitat.

Standards and Guidelines

Streamside Management Units (SMU's) and Fish Habitat

1. For those projects which could impact water quality, specific objectives for the management of SMU's will be developed during an environmental analysis under the NEPA process. These objectives will be based on:
    a. Stream classification.
    b. Site-specific topographic, soil, channel, and vegetative characteristics.
    c. Water quality standards and goals.
    d. Other resource objectives, as appropriate.
2. SMU management objectives will be described for a specific zone along the stream's length within the proposed project area. As a minimum, a distance of 100 feet from each side of the perennial streams will be evaluated during the preparation of the SMU objectives (CFR 219.13(e)).
3. Tree stands within SMU's should be managed to maintain the vegetative characteristics needed for water quality and fish habitat protection. The need for vegetative treatment within an SMU will be determined on a case-by-case basis through the project's environmental analysis. There will be a slight reduction in timber yield due to uneven age management within SMU zones which contribute shade to the stream systems.
4. Areas in which water quality is being adversely impacted will be given high priority for treatment to minimize the effects of the impact.
5. Any vegetative management activity within an SMU will meet the following standards and guidelines:
    a. Sufficient amounts of ground cover will be maintained within SMU's to prevent significant degradation of water quality. Generally this would require at least 40 to 60 percent ground cover.
    b. The need for special contract clauses to protect channel stability and water quality (e.g., directional or cable-assist falling) will be assessed through environmental analysis under the NEPA process.

Floodplains

1. All project environmental analysis will discuss the presence of and potential impacts to any inventoried floodplain within the project area.
2. Investments in major structures, roads, or other facilities within floodplain zones may be made only if no feasible alternative site outside the floodplain exists.
3. In recreation sites where danger to human life exists due to flooding, warning signs will be maintained at the 100-year expected flood leve
4. Activities, such as timber sales, which could have short-term impacts on floodplain values are permissible only if specific mitigation measures designed to minimize the impacts a documented through the project's environment analysis. Natural floodplain characteristics mus be restored shortly after the activity has stopped.

Wetlands

1. All project environmental analyses will discuss the presence of, and potential impacts to, any inventoried riparian area within the project are
2. Vegetative and ground cover requirements are

a. Where site potential and topographic factors permit, riparian areas should be managed to provide the amount of shade necessary to meet stream temperature goals.

b. Riparian areas should be managed to maintain upper streambanks in a stable condition along at least 80 percent of the stream's length.

c. With grass-forb riparian communities, at least 80 percent of the site's potential grass-forb ground cover should be retained. Similarly, in shrub riparian communities at least 80 percent of the site's potential shrub cover should be retained. In riparian areas normally dominated by trees, at least 80 percent of the potential tree crown cover should be retained.

   In riparian areas with mixed layers, the cover requirement may be met by taking credit for the effective cover provided by all vegetative layers of the riparian community including shrubs, tree understories, and the dominant overstory forest. The mitigating effect of stream size and orientation as well as surrounding topography should be considered in figuring the amount of cover which can be removed.

d. Until more specific information is obtained, Volland's "Plant Communities of the Central Oregon Pumice Zone" will be used as a guide for determining site potential.

Transportation

1. Roads will not be constructed through the length of a riparian area. Roads crossing a riparian area will not alter stream or groundwater flow characteristics to a degree which will impact the riparian characteristics.
2. Road drainage will be designed and maintained to eliminate any influx of sediment road runoff directly into riparian areas.

Range

1. Grazing use levels within riparian areas will be based on the plant communities present in the area.
2. Based on season-long grazing and fair range conditions, forested and grass-forb communities should not exceed 40 percent utilization and shrub communities should not exceed 30 percent utilization.
3. Rotation grazing systems will be used where applicable.
4. When other management strategies will not protect the integrity and vigor of the riparian communities in active allotments, fencing will be used to control utilization.
5. Salt blocks will be located and moved to prevent excessive trampling or site deterioration of riparian areas.

Recreation

Recreation activities will be managed to prevent site deterioration within riparian areas. In areas of concentrated use, trails should be designed and maintained to minimize impacts on riparian communities.

Riparian Areas

Transportation

Roads and Trails

Roads and trails will be at the lowest density which meets long-term resource needs. Where existing roads or trails are impacting water quality steps will be taken to mitigate the problem.

Design and Construction

1. Road construction activities will be scheduled to minimize the amount of unprotected soil surfaces when heavy rain or heavy surface runoff are most likely to occur.
2. Ensure that erosion control measures are completed prior to times of year when heavy rain or heavy runoff are normally expected.
3. Whenever practical, roads should be located on areas with the lowest erosion hazard.

4. Ensure that temporary culverts or bridges are used where stream bottoms or banks would otherwise be damaged and that these temporary structures are removed after use.

5. Locate skid trails and roads to avoid paralleling stream channels in SMU areas. New landings should not be placed in SMU's. Existing landings within SMU's which are impacting or could impact water quality should be obliterated.

6. Roads which pass through high water table areas should be constructed in a manner which does not alter the flow characteristics of the groundwater.

Maintenance

1. Ensure that necessary road and trail maintenance is performed on all runoff control and drainage structures (dips and culverts).

2. Provide for additional maintenance of road drainage and crossing structures during periods when unusual runoff is expected.

3. Ensure that appropriate traffic management is established to prevent the creation of pollution-generating conditions, such as deep wheel tracks in roads during wet weather.

Stream Crossings

1. Design and construct the transportation system to minimize the number of stream crossings.

2. Locate stream crossings and the approach alignment to minimize stream damage.

3. Bridge approach fills should be riprapped or protected by wing walls.

4. Ensure adequate sizing of culverts or bridges to accommodate anticipated high streamflows and to allow fish passage.

5. Schedule stream crossing construction during low streamflow and/or outside fish spawning periods.

6. Stream crossings should not change floodplain or streamflow characteristics.

7. Maintain existing riparian communities both upstream and downstream from the crossing.

Fire

1. For prescribed burns

   a. Construct water diversions on firelines in hilly or steep terrain to drain water into areas with sufficient vegetation or other protection to avoid erosion.

   b. Provide for a protective strip of undisturbed surface between the prescribed burn area and perennial water courses, considering local topographic, vegetative, and soil characteristics.

   c. Avoid intense prescribed fires on soils that are highly erodible and/or are subject to the development of hydrophobic (nonwettable) conditions.

2. For fuel treatment

   a. Where there is piling and burning:

      (1) Piles will not be located within the normal high water flow area of natural and man-made drainages or water courses.

      (2) Slash piles located within mapped floodplains should be burned within one year after piling.

      (3) Within the normal high water zone of a stream, remove slash created as the result of an activity, unless needed for soil protection purposes.

   b. For chipping, crushing, lopping/scattering:

      (1) Dispose of material so it will not reach stream courses.

      (2) When practical, disperse material over a wide area.

3. For pesticides

Pesticide application will conform with EPA regulations, label restrictions, and the Regional EIS on pesticide applications.

4. For sewage disposal

Effluents will be disposed of in a manner which will prevent the contamination of surface or subsurface water.

Soils

Goal

To maintain or enhance soil productivity.

Standards and Guidelines

The potential for soil displacement, compaction, mass wasting, and surface soil erosion will be specifically addressed through project environmental analysis. Alternative management practices will be developed and mitigating measures planned and implemented when activities are likely to result in detrimental displacement, compaction, mass wasting, or erosion.

The Forest will have and use appropriate contract and permit language to achieve soil management objectives.

Soil Displacement and Compaction

1. No more than 20 percent of an activity area[2] can be compacted or displaced to a degree which degrades vegetative productivity. This includes roads, skid trails, and landings. Permanent recreation facilities may be an exception.
2. Sites on which the direction for displacement and compaction cannot be met will require rehabilitation. Ripping, backblading, or fertilizing may be needed to meet the direction.
3. Use of mechanized equipment off roads and preestablished trails will be regulated to protect the soil resource. Existing trails and roads will be used whenever feasible or practical.

Surface Soil Erosion

In order to minimize soil erosion by water the following ground cover objectives should be met within the first 2 years after an activity is completed. (See Table 4-12).

Table 4-12 Surface Soil Erosion

Surface Erosion Potential[1]	Minimum Percent Effective Ground Cove	
	1st Year	2nd Ye
Low	20 - 30	31 - 4
Moderate	31 - 45	46 - 6
High	46 - 60	61 - 7
Severe	61 - 75	76 - 9

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[1] Interpretation for adjective ratings can be found in Daniel M. Larsen's Soil Resource Inventory, Deschutes National Forest, Pacific Northwest Region, 1976.

[2] Effective ground cover is the basal area of perennial vegetatio plus organic litter ½ inch or more thick and ¾-inch to 12-inch diameter (on longest axis) rock material. It would include the crowns of trees and shrubs that are in contact with the soil. E fective ground cover figures relate the acceptable levels of ons erosion for landtypes found in the Forest Soil Resource Invent Report.

Soil Mass Wasting

When a project could result in an increased pote tial for mass wasting which could cause significa soil loss or sedimentation, hazards to life or prope ty, fish habitat damage, or damage to other resource values, alternative project proposals will developed and evaluated through the project's er vironmental analysis.

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[2] An activity area is the total area for which a ground-impacting activity is planned; for example, unit of a timber sale, slash disposal project, and grazing allotment. The area would also include transportation systems within and directly adjacent to the project.

Wildlife

Goal

To provide habitat for viable populations of all vertebrate species and to maintain or enhance the overall quality of wildlife habitat.

Standards and Guidelines

Management Indicator Species

Bald Eagle and Northern Spotted Owl

Management Areas have been established for these species. Should one of these species be encountered outside of the Management Area, the following process will apply:

1. Determine if the species' use of the area is incidental or for essential habitat.

2. If it is determined to be essential habitat, protect it from adverse modification through curtailment of conflicting activities, modification of activities, seasonal restriction of activities, or avoiding the area. For bald eagles, request a formal consultation with the Endangered Species Branch of the Fish and Wildlife Service on any proposed action which may affect the species.

3. For newly discovered essential habitat, conduct environmental analysis under the NEPA process to determine if it is necessary to designate the area as essential habitat. If so, the Forest Plan will be amended and the essential habitat designation will supersede previous land allocations or can be substituted for other habitat allocated to threatened or sensitive species.

Osprey

A Management Area has been established for osprey. Should an osprey nest be encountered outside of the Management Area, active nests will be protected during the nesting season and disturbing human activity will be restricted from March 1 to August 31 within a ¼-mile radius or, depending on specific condiions at the site, the distance could be less or greater. Nest trees will be protected until they are no longer useable.

Goshawk

Active nests will be protected during the nesting season. Seasonal restrictions on disturbing human activities will apply from March 1 to August 31 within a ¼-mile radius around the nest or, based on conditions at the site, the distance could be greater or smaller. Goshawk nest trees do not need to be protected indefinitely as suitable nesting groves are available on a continuing basis.

Great Blue Herons

Rookeries will be protected and seasonal restrictions on disturbing human activities will be in effect from March 1 to August 31 for a ¼-mile radius around the rookeries. Future nesting trees for existing rookeries will be provided for. The emphasis will be placed on providing large, mature, and over mature ponderosa pine within the general vicinity of existing rookeries.

Woodpeckers (Cavity Nesters)

In coniferous forests sufficient snags will be maintained to provide for 60 percent of the potential population levels of cavity nesting species. This will require an average density of 1.35 existing snags/acre in ponderosa pine and mixed conifer and 1.08 in lodgepole pine. Sufficient live, green replacement trees must be left during any final harvest to assure adequate snags through the rotation. Snags may be uniformly distributed or in clusters.

Waterfowl

Continue with maintenance of waterfowl nesting boxes and platforms and increase waterfowl production where possible.

Elk

Provide for habitat needs through coordination with livestock grazing, timber sale, and transportation planning.

Resident Trout

For habitat protection measures, refer to the Standards and Guidelines for Riparian Areas and Fish Habitat. In addition, coordinate land management activities with the Oregon Department of Fish and Wildlife's objectives for various waters as they are established. (The Oregon Department of Fish and Wildlife has established specific management plans for Davis and Paulina Lakes. The Department also designated the Little Deschutes River as a Wild Trout Fishery. The management plan for the Metolius River focuses on both wild trout and stocked fish.)

Peregrine Falcon and Wolverine

Continue to monitor and evaluate reported sightings. In cooperation with the Oregon Department of Fish and Wildlife and the Endangered Species Branch of the Fish and Wildlife Service, attempt to verify the presence of the species. Protect occupied essential habitat if it is determined to occur on the Forest.

Deer

Refer to Deer Habitat Management Area and wildlife management direction in the General Forest Management Area.

The major mule deer migration corridors should be considered and provided for during project planning, transportation planning, and in the Land Adjustment Program. Minimizing barriers to movement, development with high densities of people, and providing for cover are key elements to be considered.

Other Species

Raptors

Active nests will be protected during the nesting season by establishing a zone around the nest and restricting activity within that zone. The zone could range from .1 to .25 of a mile depending on the species and conditions at the site. The nesting season is normally from March 1 to August 31.

Species Associated with Dead and Downed Logs

A minimum of 2 dead and downed logs per acre should be left in areas where timber management activities will occur. Trees or logs greater than 12 inches in diameter on the large end and a minimum of 20 feet long are recommended.

Species Associated with Various Plant Communities and Successional Stages

Diversity is to be provided for by having various successional stages represented in an area through time. Large homogeneous areas of the same species and/or successional stages should be avoided.

Species with Special or Unique Habitats

Habitat for species associated with springs, seeps, cliffs, and talus slopes will be protected during project development.

Transportation

Road design, standards, location, and management will consider movement patterns and migration routes of big game and dispersal of and access for big game hunters. Road closures can be used to limit disturbing human activity for the benefit of selected species or groups of species. Closures may be for all or part of the year.

Coordination

Activities that affect fish or wildlife resources will be coordinated with the Oregon Department of Fish and Wildlife.

Threatened, Endangered, and Sensitive Plant Species

Goal

To protect and manage habitat for the perpetuation of plants which are listed as threatened, endangered, or sensitive.

Standards and Guidelines

1. During environmental analysis of each project activity, available habitat, location records, and other information should be reviewed to determine whether known or suspected locations of sensitive plant species or their habitat occur.

2. If no suitable habitat or reported locations of sensitive plants are identified, these findings should be documented, and no further investigation is required. However, personnel should continue to watch for the occurrence of previously unknown populations. Where local conditions warrant, it may be desirable to perform field reconnaissance of such areas even though available records do not indicate the presence of sensitive plant species.

3. When suitable habitats or reported locations are suspected to occur in the area of influence of the project, a field reconnaissance will be performed to more precisely verify the presence, abundance, and distribution of the sensitive species. If the search is conducted during a season of the year when positive identification is probable and no listed species are found, this fact should be documented and no further investigation is needed. Again, project personnel should remain alert to the possibility of overlooked populations.

4. If listed plant species are found in the project influence area, their actual distribution and current status will be determined. Informal consultation with the Endangered Species Branch of the Fish and Wildlife Service will be initiated if the species is Federally listed. If the proposed project would jeopardize the existance of the species, it would be modified or curtailed. If this is accomplished, a no-effect situation exists and should be documented. Identified safeguards will be clearly spelled out in the environmental analysis and project plan and project personnel will be fully responsible for being aware of and implementing them. Supervision of the activity must assure that actions which jeopardize the listed species do not occur.

5. If actions which may affect habitat for Federally listed endangered or threatened species cannot be avoided, the activity will be deferred until a formal consultation with the Endangered Species Branch of the Fish and Wildlife Service is completed to determine a course of action.

6. In cases where other high values or uses would be foregone if the proposed activity were modified or deferred, a full botanical investigation of the species involved may be conducted. Management guidelines will be developed that will make possible an assessment of the significance of the specific population involved. Based on these findings and consultation with appropriate State and Federal agencies, an appropriate course of action will be determined.

Timber Management

Goal

To provide for the optimum production of wood consistent with various resource objectives, environmental constraints, and economic efficiency.

Standards and Guidelines

These standards and guidelines provide for even-aged timber management on suitable lands. Management of bald eagle, osprey, and spotted owl habitat, Streamside Management Units, and those specific cases identified through environmental analysis to achieve other resource goals may be accomplished using small group selection to achieve uneven-aged management.

1. Silvicultural prescriptions will be prepared for all activities proposing the management of trees or timber stands to meet resorce management objectives. Prescriptions will be recorded in the Forest data base.

2. All prescriptions will be prepared or approved by a certified silviculturist.

3. Elements required in a silvicultural prescription are documented in FSH 2470, the Silvicultural Examination and Prescription Handbook, and by Regional direction. No standardized format will be required, but all requirements must be addressed in the prescriptions or through project environmental analysis.

4. Silvicultural prescriptions must designate the predetermined number of snags and trees for future snags that will meet the habitat requirements for cavity nesting species; exceptions could be fuelbreaks or situations where snags could cause a safety hazard. (Refer to woodpeckers and species associated with dead and downed logs in the Wildlife Standards and Guidelines.)

5. Stand examinations and/or other data gathering processes will be used to verify or develop silvicultural prescriptions.

6. A regeneration system providing the desired establishment conditions will be selected. Leave trees per acre and leave basal area per acre for seed tree or shelterwood systems will be silviculturally prescribed on a site specific basis.

7. The Forest will conform to the Regional guidelines on created forest openings. Forest openings created by even-aged silviculture should not exceed 40 acres in ponderosa pine, mixed conifer, and mountain hemlock except for any of the four conditions which have been approved in the Regional Plan. Created openings can exceed 40 acres in lodgepole pine to treat the catastrophic situation created by the mountain pine beetle epidemic. Units will be shaped to blend with the natural terrain.

8. Created openings will be separated by blocks of land generally not classed as created openings as described in these Standards and Guidelines. The blocks of land between created openings shall vary in size and contain one or more logical logging units. These blocks of land shall be large enough and of a stand structure to meet resource requirements of the Forest Plan.

9. Openings to be created contiguous to natural openings should receive an exceptional level of attention during the analysis and prescription for treatment since natural openings are recognized as important or critical. The decision to create openings contiguous to natural openings shall be supported by prescriptions specific to individual natural openings or to a group of natural openings where their importance is diminished by more frequent occurrence. The created openings should generally not exceed ⅓ the size and/or be contiguous to more than ⅓ the edge of a natural opening where the natural opening exceeds 30 acres in size. Limitations for created openings contiguous to natural openings less than 30 acres in size will be subject to the Interdisciplinary decision making process and its review of land management objectives.

10. "Plant Communities of the Central Oregon Pumice Zone"[3] and the Deschutes Soil Resource Inventory will be used as guides to site productivity and other management considerations.

11. The silvicultural prescription should consider integrated pest management. Pests include insects, diseases, animals, and vegetation. References for information on the above are

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[3] Leonard A. Volland, "Plant Communities of the Central Oregon Pumice Zone," Deschutes National Forest, Pacific Northwest Region, 1976.

"Plant Communities of the Central Oregon Pumice Zone" for information on vegetation and some animal pests and "Forest Insect and Disease Activity on the Deschutes National Forest and Guidelines for Preventing and/or Reducing Their Losses"[4] for insects and diseases.

12. Size of units for intermediate treatments, overwood removal treatments, and precommercial thinning will be determined through the interdisciplinary process during environmental analysis. Normally these units will not exceed 100 acres. Possible exceptions are stands which have a high susceptibility to insects and disease or where they are exhibiting retarded growth due to disease.

13. Vegetative diversity will be considered when preparing prescriptions and schedules for large homogenous areas that are generally the same age, the intent being to provide a mosaic of stands at different conditions and ages.

14. Regional and local stocking guides will be utilized to assess adequate stocking on all regeneration units prior to certifying them as being satisfactorily reforested.

15. Natural regeneration opportunities will be taken advantage of. If artificial regeneration is necessary, the recommended method will be to plant.

16. In seedtree and shelterwood units, two year or older seedlings should be present 5 years after the seed cut. Stands regenerated with the seedtree or shelterwood system will not be certified as satisfactorily reforested until final harvest and postharvest activities are completed.

17. In clearcut units, site preparation should be completed within 2 years of harvest. Planting shall occur within 1 year of site preparation. Exceptions can occur but only for resource objectives that have been documented through environmental analysis. These units should be suitable and certified as satisfactorily reforested 3 years after planting.

18. Commercial and precommercial thinnings will be based on regional and local stocking guides unless site-specific information is available.

19. Juvenile height growth guidelines will be established and monitored with the objective of getting 90 percent of the crop trees to meet these goals.

20. Pesticide application will conform to Regional direction.

21. The following guidelines should be used to carry out the recommended silvicultural prescription.

Overwood Removal

Overwood trees should be removed as rapidly as possible, providing the following criteria are met.

1. Reproduction no longer requires protection of overwood trees.
2. Reproduction has gone through a minimum of two growing seasons, is healthy, and has stocking levels meeting or exceeding the recommended numbers on 90 percent of the area.
3. Removal meets other resource objectives as defined during environmental analysis.

Regeneration

Regeneration system selection will be based on establishment of conditions required for the species to be regenerated.

1. Prescribe clearcuts when:
   a. Regenerating intolerant species and planning to reforest by planting.
   b. Regenerating intermediate tolerance species (i.e., Douglas-fir), and planning to reforest by planting and providing some protection (i.e., microsite planting, shadeblocking).
   c. Regenerating intolerant species in heavily diseased or insect infested stands.
   d. Regenerating intolerant species and planning on natural regeneration.

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[4] Robert E. Dolph and Gregory M. Filip, "Forest Insect and Disease Activity on The Deschutes National Forest and Guidelines for Preventing and/or Reducing Their Losses," Pacific Northwest Region, July 1980.

2. Prescribe seed trees when:

a. Regenerating intolerant species and seed for planting is limited.

b. Regenerating intolerant species and planning to supplement planted stock with natural seeding of another species.

3. Regenerating intolerant species where anticipated mortality will be high and supplementing planted stock to ensure that adequate stocking is achieved.

d. Regenerating in areas physically unsuited for plantings such as stony areas or areas with high potential for animal damage.

3. Prescribe shelterwoods when:

a. Needing site amelioration for establishment of intermediate or tolerant species.

b. Regenerating intolerant species on the fringes of their normal ranges (i.e., regenerating lodgepole or ponderosa on desert fringe).

c. Needing to modify site to reduce potential animal damage.

d. Needed when natural regeneration can be assured and clearcutting and planting are not as economical.

e. Needing to meet other resource objectives.

Standards and Guidelines Applicable to Specific Forest Uses (Category III)

Special Uses

Goal

To provide for the use and occupancy of the National Forest by private individuals or Federal, State, and local governments when such use is consistent with Forest management area objectives, is in the public interest, and cannot reasonably be served by development on private land.

Standards and Guidelines

Non-Recreation Permits

1. When applications for rights-of-way for utilities are received, the Forest's first priority will be to utilize residual capacity in existing corridors.

   Existing utility corridors are listed and shown on the Electronic Sites and Major Utility Corridors Map.

   One additional facility (for which the new right-of-way is not to exceed 150 feet in width) may be added to each existing corridor. However, additional facilities or right-of-way widths beyond the limitation set above could be considered, but would require an environmental analysis.

   Any additional corridors which may be needed for major utilities will be designated through an interagency environmental analysis, following the procedures set forth in the Regional Plan. The Forest Plan will be amended to include any additional major designated corridors.

2. Applications for licenses or grants associated with dams and reservoirs may be recommended for approval if they are consistent with management goals and objectives. Such applications will be subject to an environmental analysis.

3. The municipal watershed agreement for the Bend Watershed may be modified as a result of the management direction for the Bend Watershed. Other formal or informal agreements may be entered into if needed.

4. National Forest land will not be made available for support facilities for private development when private land is available for such support needs.

5. For electronic sites, the following actions should be taken:

   a. Develop site plans for existing sites which have facilities in place.

   b. Identify some additional sites which can be developed during the Plan period.

   c. Develop site plans for new sites prior to installation of facilities.

   d. Site plans should contain the following:

      (1) An inventory of all existing users, their addresses, lot or location on the site plan.

      (2) Graphics material which show the location of existing buildings and antenna, access roads, utilities, and other improvements.

      (3) The site will be zoned to show areas for low- and high-power communications- type service.

      (4) A narrative containing management objectives for the site. Include specific conditions for the protection of other resources and any restrictions on the size, number, configuration, or design of facilities.

   e. Applicants for facilities will be directed toward use of the sites in the following order, as identified on the map of electronic sites.

      (1) Utilizing residual capacity of existing sites.

      (2) Utilizing new sites identified in 5-b above.

      (3) Utilizing other sites following evaluation through an environmental analysis and followed by preparation of a site plan.

6. The Forest will consider applications for research, study, training, or other uses through the NEPA process.

Recreation Special Uses

Recreation special-use permits are issued to meet general public recreation service needs that are identified through the forest land and resource management planning process. This public service need must be demonstrated and it must apply to a significant number of the recreating public before any special-use permits will be issued. Many business opportunities exist on National Forest lands that do not necessarily represent public needs. Local managers must ensure that there is a genuine public need for new services before new permits are issued. If a public need does exist, the following procedures will apply in issuing a new special use permit. Procedures are discussed starting with a general section which applies to the sections covering existing permits, proposed permits, and specific types of permits or areas.

1. General

   a. The experience provided must be compatible with the ROS classification of the area. All facilities, including resorts, will be designed to furnish services to those seeking forest recreation. The facilities themselves do not constitute the recreation attraction. They will be adequate to provide reasonable comfort and convenience, but with no elaboration which would be out of keeping with the forest environment.

   b. The number of special-use permits for a specific use will be limited as much as possible to reduce administrative costs and to create economical operations that provide a high quality public service. Special-use permits should generally be Forest-wide.

   c. The base of operation for special-use permittees should be on private land when possible. Destination resorts located on private land should supply the base area for permitee's providing service for their guests or residences.

   d. Minimize the impact of special-use permits on other users through the operating plans.

   e. Prospective permittees must demonstrate that they have the financial resources to undertake the proposed venture. Assets must be readily convertible to cash which generally excludes real estate.

2. Existing Permits

   a. Incorporate as many needed public services as possible under existing special-use permits, i.e., all activities at Mt. Bachelor under the Mt. Bachelor permit, fishing guide permits under the resort permit, etc.

   b. Existing permittees will be expected to provide needed services in all areas of the Forest even if this is outside their normal operating areas. If the permittees are not willing to meet the public needs, their permits may be terminated and reissued to a permittee who will provide the service.

   c. Commercial operators will be expected to pay or contribute their fair share of road and trail maintenance or other resource damage cost caused by their operations.

   d. A cash flow analysis will be required of all purchasers of existing permits before they are transferred. These analyses will include the cost of bringing the facilities or equipment up to standard if necessary. If the analysis does not indicate a profitable operation, the permit will not be transferred.

3. New Permits

   a. Both public benefits and public costs will be considered when reviewing new proposals. With limited funds or resources for program administration, priorities must be determined with both costs and benefits in mind.

   b. The National Environmental Policy Act (NEPA) will be followed in making decisions about new permits or significant amendments to existing permits.

   c. New special-use permits should be issued through the prospectus process.

   d. Perspective permittees will be required to furnish a demand assessment that will indicate the number of people who would participate in any new use. If the permittee cannot identify enough use to make a profitable operation, no permit will be issued.

   e. A cash flow analysis demonstrating the profitability of the operation will be required for all new proposals. Permits will not be issued unless the analysis indicates the operation will be profitable.

4. Direction for specific types of special-use permits and geographic areas

   a. Commercial rafting will be restricted to the section of the Deschutes River where it currently exists. No commercial rafting will be permitted on the Metolius River.

   b. Outfitter and Guide proposals for activities having low impacts will be favored over those having higher impacts.

   c. Additional direction on outfitter/guide operations in Wilderness is contained in the Wilderness Management Area section and in the Wilderness Management Plans.

   d. No permits for commercial services will be be issued in campgrounds or any other developed sites. This includes all types of food services, selling firewood, selling fishing equipment, and worms, etc. An exception to this policy exists on the lower Metolius River near Lake Billy Chinook where a small store may be needed to meet the needs of recreationists.

   e. Permits for recreation events will utilize the following additional direction.

   (1) Proposals will be screened to determine if they are cost effective to the government. If a proposal is not cost effective, the applicant will be ask to: 1) pay a fee which makes it cost effective, or 2) enter in to a cooperative deposit to pay for the additional administration thereby making the proposal cost effective, or 3) the permit may be denied.

   (2) Only a limited number of permits will be issued each year. Applications will be prioritized and permits issued using the following criteria.

      (a) The number of years an activity has previously been under permit.

      (b) The need for the activity to be held in a forest environment.

      (c) The number of people (partipicants) served.

      (d) How wide the spectrum of public served is.

      (e) Potential positive effect on the local economy.

      (f) The amount of government funding and resources available to administer the program.

      (g) Existing recreational resident special-use permits will be continued with no new permits to be issued. The exception could be if a site is needed for a higher value public use. If such a situation develops, any terminations will be evaluated through the NEPA process with the involvement of the permit holder.

Energy Resources - Oil, Gas, and Geothermal

Goal

To provide for exploration, development, and production of energy resources on the Forest while maintaining consistency with other resources values.

Standards and Guidelines

Some leasing decisions have been made prior to the development of this Plan. Geothermal leasing has occurred on approximately 350,000 acres to date. This leasing was done through Environmental Assessments which were prepared for the Fort Rock Ranger District, the Sisters Ranger District, and with the Bend and Crescent Ranger Districts combined. Post leasing activities will be evaluated through the NEPA process and the operating plans will consider the Standards and Guidelines and Management Area prescriptions in this Plan.

Lease applications (after this Land Management Plan is approved) will be subject to the NEPA process, the Energy Resources Standards and Guidelines, and the Management Area prescriptions. Following are three categories of leasing and the areas they apply to.

1. Leasing is Denied

   Leasing will be denied in the following areas:

   a. Wilderness

   b. Oregon Cascade Recreation Area

   c. Bend Municipal Watershed

   d. Intensive Recreation, (developed portion)

   e. Undeveloped Recreation Management Areas, except for the periphery

   f. The interior of the Newberry Crater. (See map in Appendix 7.)

   Leasing will be recommended to be denied in the following areas which have Chief of the Forest Service authority:

   g. Research Natural Areas
   h. Experimental Forests, except for the periphery

2. Leasing with Restrictions and/or No Surface Occupancy

Areas of the Forest in this category could be leased but would limit use of the surface or contain other restrictions limiting geothermal exploration and potential development activities in order to mitigate effects and to protect other resource values within the management areas. These restrictions might also affect the time of year that post leasing activities could occur. Some areas may have a combination of restrictions and no surface occupancy. Following are Management Areas that are included in this category.

   a. Special Interest Areas

   b. Old Growth

   c. Intensive Recreation (Undeveloped portion)

   d. Undeveloped Recreation (periphery)

   e. Scenic Views

   g. Deer Habitat

   h. Bald Eagle, Northern Spotted Owl, and Osprey areas

   i. Experimental Forest (periphery)

3. Leasing with Minimum Restrictions

   Areas in this category could have the least amount of restriction. There may be site specific areas which would have restrictions, but these areas are generally available for exploration and potential development of energy sources. The areas are:

   a. General Forest areas

   b. Winter Recreation/Geothermal areas

In addition to the above, the following will apply to new lease applications.

1. The Forest will utilize the Pacific Northwest Region's Environmental Assessment entitled "Leasing National Forest Land for Oil and Gas"

as the basis for making recommendations about Oil and Gas leasing and in determining necessary stipulations for the protection of other resources.

2. Post leasing activities will involve the review and joint approval by the Forest Service and Bureau of Land Management of detailed operating plans concerning activities in a site specific area.
3. Specific leasing decisions for the areas listed above under 2b and 2c will be made through a subsequent NEFA process which will be tierred to this Land Management Plan.

Energy Resources - Newberry Crater Known Geothermal Resource Area (KGRA)

Goal

To provide for exploration, development, and production of energy resources within the portions of the Newberry Crater KGRA where development of the geothermal resource is compatible with other resource values.

Standards and Guidelines

In preparing the proposal about leasing, some basic assumptions are:

1. The production stage would not likely be entered during the period of the plan. Therefore, consideration puts more emphasis on the effects of exploration and testing than development.

2. Exploration will require ground or vegetative disturbance.

3. If exploration shows that a viable resource exists in the areas being leased, development of that resource will be allowed and controlled through further site specific environmental analysis.

Three general zones have been identified. They a the interior of the Crater from the edge of the rim down, the top rim of the Crater, and the outside slopes of the Crater. The following apply to these areas:

1. Interior of the Crater. No leases will be issue with this zone because of steep slopes and potential conflicts with Intensive Recreation a Undeveloped Recreation Management Areas (Refer to map, Appendix 7.) Limited explorato drilling, the results of which will be public inf mation, would be permitted on a case-by-cas basis. Drilling would be covered by prospect permits and would be located and conducted within the overall direction for the Managem Areas.

2.. Rim of the Crater. This area could provide fo leasing following environmental analysis in c pliance with the NEPA process. Leasing, pro specting, exploration, and development woul have to be in compliance with the Managem Area objectives that are involved. Some restr tions will likely apply.

3. Outside Slopes of the Crater Leasing could provided for following environmental analysis compliance with the NEPA process. Leasing prospecting, exploration and development w have to be in accordance with the direction the Scenic Views and General Forest Manag ment Areas.

Minerals

Goal

To provide for exploration, development, and production of a variety of minerals on the Forest in coordination with other resource uses and objectives.

Standards and Guidelines

Common Mineral Materials

1. A limited supply of materials is available in some areas of the Forest.

   In areas where mineral resources are known to be scarce, the Forest should intensify exploration to determine if new "proven" mineral reserves can be identified.

2. Use of existing material sources will be given priority over undeveloped sources. Exceptions would be made when existing sources are unable to economically supply the quantity and quality of material needed or when conflicts with other resource uses were found to be unacceptable. Cinder, hardrock, and gravel sources which are available for use during the planning period are mapped according to the following categories as shown on the Material Source map.

   a. Material source on private land.

   b. Hard Rock source for use by the Forest Service and by other public agencies where supplies are adequate.

   c. Gravel sources for use by the Forest Service and by other public agencies where supplies are adequate.

   d. Cinder pits for use by the Forest Service only.

   e. Cinder pits for public and other agency use.

   f. Existing cinder pits which are closed or inactive (intermittent) which will be held in a reserve status. They may be used periodically or may be designated as principal sources as existing sources are exhausted and rehabilitated.

   g. Cinder pits for use by the Forest Service and other agencies.

3. Gravel or hard rock material will not be sold to the private sector during the planning period unless a Forest evaluation of the supply shows that it would be in the public interest

4. A management plan will be developed for each area where a mineral material source is or will be developed and used during the planning period. The source plan should include the following material:

   a. The projected rate of use, total volume of minerals, and expected life of the pit.

   b. A description of the type, quality, and quantity of the mineral at the source.

   c. A summary map showing the projected shape of the source at major stages of development.

   d. A description of the environment affected by developing the source.

   e. A description of the sequence of development.

   f. Constraints on the development of the source.

   g. Reclamation requirements.

5. Capital investments and improvements on structures will not be made so as to conflict with the use of a known mineral material deposit except when:

   a. The economic need of the investment or improvement is greater than the value of the mineral resource.

   b. The investment cannot be located anywhere else.

   c. The investment can be amortized before the mineral resource is to be utilized.

6. Minor amounts of clay, sand, and stone can be sold to the public on a case-by-case basis.

Mining Claims

When prospectors or claimants propose mining activities which involve significant disturbance of the surface resources, an operating plan must be submitted in accordance with 36 CFR 281. The Forest's review will be directed toward minimizing adverse environmental impacts on the surface resource and toward reclaiming the site. Approval will be given when the Forest's concerns are mitigated in a responsible and responsive manner.

Withdrawal of Lands From Appropriation or Entry Under The Mining Laws

1. The Forest will review all of its existing withdrawals and will make recommendations to the Secretary of Ariculture concerning their extension or removal.

2. Withdrawals from mineral entry may be made if an established or anticipated use is not compatible and cannot be mitigated as part of the mineral entry.

Management Areas and Prescriptions

A Management Area is a unit of land with similar capabilities and common management prescriptions. Each Management Area describes a goal to be achieved. Management practices and the prescription are implemented within the previously described standards and guidelines. The Management Areas together with the accompanying Alternative E map identify what activities will take place and where, during implementation of the Forest Plan. A more detailed larger scale map will be developed to implement and monitor the Forest Plan. These maps will be available at the Deschutes National Forest Office when the final Plan is approved.

Table 4-13 displays Management Areas and their acreages.

Table 4-13 Management Areas by Acres

Management Area	**Acres**
1 (Special Interest Areas)	19,243
2 (Research Natural Areas)	6,976
3,4,5 (Bald Eagle, Spotted Owl, and Osprey)	37,413
6 (Wilderness)	182,506
7 (Deer Habitat)	212,063
8 (General Forest)	717,219
9 (Scenic Views)	212,355
10 (Bend Municipal Watershed)	3,536
11 (Intensive Recreation)	79,648
12 (Undeveloped Recreation)	44,762
13 (Winter Recreation)	32,640
14 (Oregon Cascade Recreation Area)	42,656
15 (Old Growth)	19,353
16 (Experimental Forest)	10,042
Total	1,620,412

As shown in Table 4-13, the entire Forest is covered by Management Areas. Acreages range from approximately 3,500 acres to as high as 717,000 acres. Within the Management Areas there are, or may be discovered, unusual or special situations which are not consistent with the prescription for a given Management Area. In such cases, the Management Area prescription may be modified to provide for any unusual or special situations. Such modifications will be the exception rather than the rule and will be documented through environmental analysis through the NEPA process. An example could be a well established and long used hunter camp in the General Forest Management Area where the timber prescription could be modified to protect it. Another example might be a golden eagle nesting site in a Scenic Views Management Area where a small area is managed as golden eagle habitat rather than emphasizing the Scenic Views prescription. Cumulative modifications of prescriptions should not exceed 5 percent of total acres within any given Management Area during the life of the Plan.

During implementation, it may be discovered that Management Area boundaries were improperly located in some cases. Minor adjustments of Management Area boundaries, except those legally established such as Wilderness and Research Natural Areas, can be accommodated provided the cumulative total does not change the total acreage within any given Management Area by more than 5 percent. Boundary adjustments will be documented through environmental analysis under the NEPA process.

The Management Area descriptions are internally organized by a goal statement and a prescription. The prescription is further organized by resources such as timber, wildlife, recreation, etc., for each Management Area. The prescription is organized so the resource being emphasized in a particular Management Area appears first.

MANAGEMENT AREA 1 (Special Interest Areas)

Goal

To preserve and provide interpretations of unique geological, biological, and cultural areas for education, scientific, and public enjoyment purposes.

Prescription

Recreation

Visitor use and activities will be managed to prevent degradation of the special interest resource.

Facilities may be provided for protection of resource values, visitor use, environmental interpretation, or safety of visitors.

Off-road vehicles will be allowed only on designated routes or within areas where their use is compatible with the purpose of the special areas. Snowmobiles will be permitted where the depth of continuous snowcover is adequate to protect other resources from adverse impacts from this activity.

Special Interest Management Areas will provide the recreation activity, setting, and experience opportunities of the Recreation Opportunity Spectrum category of either Roaded-Natural or Rural in the vicinity of interpretive complexes and access developments. All other lands within this Management Area will be managed to provide opportunities that are normally Roaded-Natural but can be Semiprimitive nonmotorized, whichever is appropriate to interpretation or maintenance of the character of the area.

Timber

Timber harvests will not be scheduled or programmed. Firewood cutting is normally not permitted but may be allowed as directed in individual special area plans.

Timber harvesting and vegetative management will be allowed in catastrophic situations and when necessary to meet objectives of the special area.

Unneeded roads and skid trails will be closed and returned to a natural vegetative condition.

Range

Domestic livestock will be permitted to utilize existing forage without changing the overall natural characteristics or conflicting with the purpose of the area. Structural range improvements and vegetative manipulation will be permitted if the natural appearance of the area is maintained.

Visual

Management activities viewed from the trails and roads may be visible, but will be subordinate to the surrounding landscape.

Transportation

Trails can be provided. Road density will be low. Helispots normally are not compatible.

Fire Management

Special Interest Areas are divided into two groups: (1) those in which protecting the vegetation is important and (2) those that are primarily geologic in nature and in which the vegetation may be treated the same as in the surrounding area. They are listed below:

Group 1

Lava Butte
Wake Butte
Moffitt Butte
Hosmer Lake
Davis Lake

Group 2

Balancing Rock
Castle/Cathedral Rock
Lava Cast Forest
Lavacicle Cave
Katati Butte
Big Hole
Hole-in-the-Ground
Lava River Caves

Wildfire

All suppression entries should use low impact methods wherever they will meet established fire sizes and intensity objectives, consistent with the Management Area direction.

Group 1

These areas should receive aggressive suppression in all areas except the low visibility area in the lava at Lava Butte.

Maximum low intensity burn acre objectives for each area are 5 acres per year and 1 acre per fire.

Maximum high intensity burn acre objectives for each area are 1 acre per year and 1 acre per fire.

Group 2

These areas should receive suppression emphasis which is compatible with the adjacent Management Area.

Prescribed Fire (Groups 1 & 2)

Prescribed fire may be used to attain the desired characteristics of the Special Interest Area and to reduce fuels to their natural conditions. Any burning would be designed to create minimum impacts on the appearance or use of the area for its intended purpose.

Fuel Treatment Other Than Prescribed Fire (Groups 1 & 2)

Fuels treatment methods should emphasize maintenance of the natural characteristics of the area.

Fuel Loadings (Groups 1 & 2)

Fuel loadings should be low enough to eliminate the possibility of high intensity fires while maintaining the natural characteristics of the area.

Wildlife

Manipulation of the game and fish habitat will be allowed as long as it maintains a natural appearance and does not conflict with the purpose or objectives of the area.

Emphasis will be on habitat improvement for watchable wildlife.

Integrated Pest Management

Prevention

Monitoring and vegetation management will emphasize prevention of outbreaks of undesirable pests.

Suppression

Take immediate suppression action utilizing techniques which protect the Management Area resources and prevent or do not cause future pest outbreaks.

MANAGEMENT AREA 2 (Research Natural Areas)

Goal

To preserve examples of naturally occurring ecosystems in an unmodified condition for research and education.

Prescription

General

Research Natural Areas are managed to preserve the natural ecological succession. All Establishment Reports for these areas must be approved by the Chief of the Forest Service.

Research on Research Natural Areas must be essentially nondestructive in character; destructive analysis of vegetation is generally not allowed nor are studies requiring extensive forest floor modification or extensive soil excavation. Collection of plant and animal specimens should be restricted to the minimum necessary for provision of vouchers and other research needs and in no case to a degree which significantly reduces species population levels. Such collection must also be carried out in accordance with applicable State and Federal agency regulations. Within these broad guidelines, the appropriate uses of Research Natural Areas are determined on a case-by-case basis, by the Regional Forester and the Director of the Pacific Northwest Forest and Range Experiment Station.

Timber

Timber harvesting is not allowed in a Research Natural Area. No control of insect or disease should be instituted.

Firewood cutting is not permitted.

Range

Grazing will only be allowed when the Regional Forester and Director of the Pacific Northwest Forest and Range Experiment Station authorize such a management practice to preserve some representation of the vegetation for which the natural area was originally created.

Where Research Natural Areas are located adjacen to or within grazing allotments, the boundaries will be marked and physical barriers constructed aroun the area to prohibit livestock entry, if needed.

Wildlife

The Regional Forester and the Director of the Pacific Northwest Forest and Range Experiment Station may authorize management practices to control excessive animal populations. This would only be done in cases where these populations threaten the preservation of some representation o vegetation for which the natural area was originally created.

Recreation

No physical improvements for recreation purposes such as campgrounds or buildings will be permitted.

Picnicking, camping, collecting plants, gathering cones and herbs, picking berries, and other public uses will be allowed as long as they do not modify the area to the extent that such uses threaten impairment of research or educational values.

The area will be closed to all off-road motorized vehicle use except over the snow vehicles in winte

These Management Areas will generally provide th recreation opportunities of the Recreation Opportunity Spectrum category of the major adjacent Management Area. The appropriate category will b limited to either Semiprimitive Nonmotorized, Semiprimitive Motorized, or Roaded-Natural. (See Appendix 2 for an explanation of the categories.)

Visual

Research facilities installed within the areas will blend with the natural surroundings.

Fire

Wildfire

Unless plans approved by the Station Director provide for letting natural fires burn, aggressive containment using low impact methods should be use High impact methods will be used only to prevent total loss of the Research Natural Area. Mopup should be minimized with natural burnout being th preferred method.

Maximum low and high intensity burn acre objectives are 1 acre per occurrence.

Prescribed Fire

Prescribed fire will be used only as specified in approved Research Natural Area management plans.

Fuel Loading

Fuels will be allowed to accumulate at natural rates.

Transportation

No roads or trails should be permitted at the boundaries or within these areas, except those considered essential to research or educational uses.

Any transportation facilities such as roads and trails provided for this Management Area will have minimum impacts on the area ecosystems and must be located and managed to best fulfill the area's management objectives. Management of the transportation facilities could include closing facilities to all but the designated research personnel. Helispots needed for fire control will be located adjacent to Research Natural Areas. Special uses such as telephone lines should not be allowed in these areas.

Minerals

Research Natural Areas will be recommended for withdrawal from mineral entry, with leasing denied.

Integrated Pest Management

Prevention

Monitor the areas to detect pest problems which could destroy the Research Natural Areas or cause damage to adjacent lands. Reintroduction of fire should be considered to reduce possible insect epidemic conditions.

Suppression

Action should be taken when the damage has the potential to modify ecological processes to the point that the area has little value for observation and research.

MANAGEMENT AREAS 3, 4, and 5 (Bald Eagle, Spotted Owl, and Osprey)

Goal

To protect and manage habitat to provide for the perpetuation of bald eagles, northern spotted owls, and osprey.

Prescription

Wildlife

The area will be managed to maintain or establish habitat for the various species to meet the criteria outlined below.

Bald Eagle

Protect all existing nesting, roost, and perch trees To provide for future trees, manage stands to emphasize ponderosa pine and/or Douglas-fir. Provide large overmature trees that will be potentially useable as nest sites and perch trees. Trees on the average should exceed 110 feet in height and be 20 inches or greater d.b.h. Suitable trees should be available at any point in time to provide for the needs of the desired population. Suitable trees should be widely distributed through the area to minimize territorial competition. A density of eight large trees per acre is satisfactory.

Osprey

Protect all existing nest sites and associated perch trees. Manage the timber to provide for some trees (any species) with dead or dying tops. Two to four trees per acre are needed for nest and perch trees. Allow enough nesting sites to provide for the population being managed. With many nest sites being lost to natural causes, an artificial nesting structure program may be required.

Northern Spotted Owl

A 1,000 to 1,200-acre area per nesting pair will be managed to provide suitable nesting and rearing habitat. The area should be characterized by mature and overmature tree stands with a fairly dense understory. Management should be designed so that suitable habitat is available at all times. To accomplish this, uneven-aged management using small group selection will be the normal approach. An alternative to this is dedicate the areas with no harvesting. This strategy can be used when uneven-aged management cannot be utilized because of logging systems problems or other difficulties encountered during project planning.

Timber

A timber harvest schedule is planned under this management area. Timber will be managed according to the following guidelines.

Bald Eagles

Emphasis will be on managing for ponderosa pine and/or Douglas-fir.

Small-group selection even-aged management will be applied to produce an average of eight trees per acre that are 300 to 350 years old with open crowns and large limbs.

Activities within ¼ mile of an active nest would be restricted between January 1 and July 31.

Northern Spotted Owls

Management should be directed to developing a two- or three-storied stand with emphasis on mature and overmature trees. Regeneration unit size should range from 2 to 5 acres.

Rotation age will be approximately 350 years.

Disturbing human activity will not be permitted between January 1 and July 31 within ¼ mile of an active nest.

Ospreys

Even-aged intensive timber management can be applied with inclusions of small areas where two to four dominant trees per acre are left.

Small-group selection may be used as an alternate to the above item where stand conditions, topography, or other factors indicate 5 to 10 large trees per acre need to be left.

It is desirable to manage small inclusions of ponderosa pine within other forest types for osprey nesting sites, but not necessary.

Prescriptions should provide for future nesting sites and trees.

Disturbing human activities will be restricted between March 1 and August 31 within ¼ mile of an active nest.

Fuelwood

Fuelwood gathering which does not conflict with objectives for providing the necessary number of snags could be permitted with seasonal restrictions.

Recreation

Areas will be managed to provide dispersed recreation opportunities such as hiking, bird watching, and hunting that are compatible with maintaining desired populations of these wildlife species.

Seasonal restrictions on recreational activities such as hunting, boating, and off-road vehicles may be needed but will be determined on a case-by-case basis. Developed recreation, such as campgrounds and resorts, is not compatible with the goals of this Management Area. Existing sites will not be expanded but may continue. New sites will not be developed within these areas.

These Management Areas will generally provide the recreation opportunities of the Recreation Opportunity Spectrum category of the major adjacent Management Area. The appropriate category will be limited to either Semiprimitive Nonmotorized, Semiprimitive Motorized, or Roaded-Natural. (See Appendix 2 for an explanation of the categories.)

Range

Range management practices can be programmed and planned under this Management Area.

Fire Management

Ospreys

Wildfire

Protection of nest trees and adjacent perch trees will be the highest priority.

During the nesting season (March 1 to August 31) suppression efforts should minimize the time the osprey may be forced away from the nest. The use of powersaws and pumps is compatible with the objective of rapid suppression and removal of distractions from the area. Outside of the nesting season suppression efforts can be conducted in a standard manner.

High intensity fires should be aggressively controlled, the objective being to minimize the acres burned and to protect the nest and perch trees. Fire camps should be located at least 1 mile outside active nesting areas.

Maximum low intensity burn acre objectives are 10 acres per year and 5 acres per occurrence.

Maximum high intensity burn acre objectives are 1 acre per year and 1 acre per occurrence.

Prescribed Fire

Prescribed fire will not normally benefit this resource. Fuels reduction may be better handled by silvicultural entries and slash cleanup.

Fuels Management Practices

Fuels management activities should be conducted between September and February.

Fuel Loading

Fuel loading should be kept at a level or arranged to minimize the chances of a large catastrophic fire. Loading will usually be the same as for the General Forest Management Area or the surrounding Management Area, if there is a conflict.

The following photo series should be used. They are found in "Photo Series for Quantifying Forest Residues", a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

	PP	LP	MC-MH
Thinning	1-MC-3-PC 4-PP-1-TH	1-MC-3-PC 1-PP-1-TH	1-MC-3-PC 1-PP-1-TH
Partial Cut	4-TF-4-RC 2-LP-3-PC	2-LP-3-PC	2-MC-4-PC 2-TF-4-RC
Clearcut	2-MC-4-RC 1-LP-3-PC	1-LP-3-CC	3-TF-4-RC 2-MC-4-RC

Bald Eagles

Wildfire

Protection of nest trees and adjacent snags will be the highest priority in this area. Suppression efforts, if within ¼ mile of an active nest during the nesting season (January 1-July 31), will be based on minimizing the disturbance time to the nesting eagles. The use of mechanized equipment such as chainsaws and pumps to reduce the exposure time is acceptable, however, the use of helicopters and aerial retardants should be used with caution near active nest sites.

Low intensity fires outside the nesting season do not conflict with the habitat objectives. In high intensity fire situations the objective will be to minimize acres burned. The use of heavy equipment and retardant aircraft is acceptable. Fire camps should be located at least 1 mile from active nests.

Standard suppression efforts may be used during the non-nesting season but with increased emphasis on saving large snags.

Maximum low intensity burn acre objectives are 10 acres/year and 1 acre per occurrence.

Maximum high intensity burn acre objectives are 5 acres/year and 1 acre per occurrence.

Prescribed Fire

The use of prescribed fire will be appropriate in ponderosa pine stands. Burns during the nesting season should be restricted to areas at least one quarter mile away from active nests.

In all other Eagle Management Areas, prescribed fire will not improve eagle habitat.

Fuels Management

No fuels management projects should be conducted within ¼ mile of active nests during the nesting season.

Fuel Loading

Maintain all large snags within ¼ mile of any nest. Optimum fuel loading should be guided by the following photo series.

	PP	LP	MC-MH
Thinning	1-MC-3-PC 4-PP-1-TH	1-MC-3-PC 1-PP-1-TH	1-MC-3-PC 1-PP-1-TH
Partial Cut	4-TF-4-RC 2-LP-3-PC	2-LP-3-PC	2-MC-4-PC 2-TF-4-RC
Clearcut	2-MC-4-RC 1-LP-3-PC	1-LP-3-CC	3-TF-4-RC 2-MC-4-RC

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Northern Spotted Owls

Wildfire

Fire suppression activities will meet the following burn objectives.

Maximum annual low intensity burn acre objectives for each area are 1 percent.

Maximum annual high intensity burn acre objectives for each area are .3 percent.

Prescribed Fire

Prescribed burning may be used to treat slash.

Fuel Treatment Other Than Prescribed Fire

All methods are acceptable.

Fuel Loadings

Fuel loadings will be at a level which will prevent a catastrophic fire. Optimum fuel loading should be guided by the following photo series.

	PP	LP	MC-MH
Thinning	1-MC-3-PC 4-PP-1-TH	1-MC-3-PC 1-PP-1-TH	1-MC-3-PC 1-PP-1-TH
Partial Cut	4-TF-4-RC 2-LP-3-PC	2-LP-3-PC	2-MC-4-PC 2-TF-4-RC
Clearcut	2-MC-4-RC 1-LP-3-PC	1-LP-3-CC	3-TF-4-RC 2-MC-4-RC

hese are found in "Photo Series for Quantifying orest Residues," a cooperative publication by the acific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Ser-ice, Portland, Oregon.

Transportation

Road networks will be designed to facilitate easy control of access during nesting season. Road closures can be used to limit disturbing human activity. Transmission corridors will be permitted with control of construction practices during the nesting season. High-voltage electric lines are not acceptable unless specifically designed to prevent electrocution of large birds.

Visual

Bald Eagles

No special management direction is needed.

Osprey

Artificial nesting structures must blend with the surrounding area.

Northern Spotted Owl

Regeneration units of approximately 3 to 5 acres will be arranged to provide long-term habitat requirements and minimize the effect on the visual resource.

Water

During extended and severe drought the U.S.F.S. will work closely with the Water Master to maintain minimum pool levels in Crane Prairie and Wickiup Reservoirs which are important nesting and food sources for bald eagles and osprey.

Integrated Pest Management

Prevention

Apply the principle of pest management with emphasis on prevention of damage from pests.

Suppression

Suppress forest pests when they are adversely affecting that component of the vegetation which is essential for nesting and rearing habitat.

MANAGEMENT AREA 6 (Wilderness)

Goal

The goal of Wilderness Management is to feature naturalness, opportunities for solitude, challenge, and inspiration, and within these constraints to provide for recreational, scenic, scientific, educational, conservation and historical uses. Permitted but nonconforming uses specified in the Wilderness Act, will be carried out under restrictions designed to minimize their impact on the Wilderness. The decisive criteria in all conflicts will be to preserve and protect the Wilderness character of the resource.

Wilderness exemplifies freedom, but is defined more by the absence of human impact than by an absence of human control. Management therefore will seek to minimize the impact of use rather than use per se. A high priority, however, will be placed on spontaneity of use and as much freedom from regimentation as possible while preserving the naturalness of the Wilderness resource and the opportunity for solitude, primitive recreation, scenic, scientific, and historical values.

In carrying out this goal, a nondegradation policy of management shall be followed. The nondegradation policy recognizes that in Wilderness one can find a range of natural and social settings from the most pristine to those where naturalness and opportunities for solitude have been diminished by established uses. It is the intent of this policy to assure that appropriate diversity and existing Wilderness character are maintained. Further intent is to ensure that all of the most pristine areas will not be reduced to the minimum acceptable standard of naturalness simply to disperse and accommodate more use.

Wilderness areas shall be managed to enhance the Wilderness resource. This includes the opportunity for solitude, physical and mental challenge, inspiration, experiencing a distinctive environment, and maintaining the Wilderness characteristics of the lands.

Wilderness Recreation Opportunity Spectrum (WROS)

This Plan recognizes that different areas within Wilderness can and should provide different opportunities and experiences. Therefore, each Wilderness has been divided into zones called Wilderness Recreation Opportunity Spectrum (WROS) Zones. Each zone has its own definition and set of management objectives that will make it distinct from the other zones. The four WROS zones are:

Transition Zone - This zone is usually adjacent to major trailheads where the user makes the transition from motorized access to foot or horse travel and is first introduced to the Wilderness. The zone normally extends from the Wilderness boundary inward along primary travel routes up to three miles and 500 feet on either side of the travel route. An exception to the three mile criteria is the Pacific Crest National Scenic Trail and other key attractions accessible by day users. Day use often predominates in this zone or is equally mixed with destination travelers who also use the interior of the Wilderness.

The zone is characterized by a predominantly unmodified natural environment but opportunities for solitude and isolation are low. Opportunities to experience challenge and risk are also low to moderate.

Semiprimitive Nonmotorized Zone - This zone is characterized by predominantly unmodified natural environment. Concentrations of users are low, but there is often evidence of other area users. The zone is managed in such a way that minimum onsite controls and restrictions may be present but are subtle. Spacing of groups may be formalized to disperse use and provide low to moderate contacts with other groups or individuals. Opportunities for isolation and solitude are moderate while opportunities for challenge and risk are moderate to high.

Primitive Trailed Zone - This zone is characterized by an essentially unmodified natural environment. Concentrations of users are very low and evidence of other area users is minimal. The zone is managed to be essentially free from evidence of restrictions and controls. Spacing of groups is informal and dispersed to minimize contacts with other groups and individuals. Opportunities for isolation and solitude are exceptionally high while opportunities for challenge and risk are also high.

Trailless Zone - This zone is characterized by an extensive unmodified natural environment. Natural processes and conditions are not measurably affected by the actions of users. The zone is managed to be as free as possible from the influence of human activities. Opportunities for isolation and solitude are at a most outstanding level while opportunities for challenge and risk are at a high level.

Social Setting Objectives

Each WROS Zone is to be managed for different social objectives.

Encounters with other groups should be limited to no more than 15 people per day in the Transition Zone, 12 people per day in the Semiprimitive Zone, 6 people per day in the Primitive Zone, and 1 person per day in the Trailless Zone. These standards should be met 80 percent of the time.

Group Size should be limited to no more than 12 people or 20 people and stock combined in the Transition Zone, 12 people and stock combined in the Semiprimitive and Primitive Zones, and 6 people or 12 people and stock combined in the Trailless Zone. Larger groups of up to 30 people and stock may be allowed by permit in all but the Trailless Zone.

Campsites Camps should be separated from other campsites and set back from trails, meadows, lakes, and streams at least 200 feet. No more than five other camps should be visible in the Transition Zone, two in the Semiprimitive and Primitive Zones, and no other camps should be visible in the Trailless Zone.

Prescriptions

Regulations

Only the minimum regulation necessary to achieve Wilderness management objectives will be applied.

Motorized and Mechanized Equipment

Use of motors or mechanized equipment is prohibited. The Forest Supervisor may approve exceptions for emergencies involving threats to life, health, or property. The Regional Forester may approve use of mechanized equipment for other situations.

Administrative Use

Administrative groups, such as Forest Service personnel, will conform to the same standards and regulations established for other user groups.

State Laws

The Forest will use air containment, water pollution, noise, and other standards established in State of Oregon law for Wilderness.[2]

Information and Education

Information and Education (I&E) efforts should deemphasize Wilderness areas or attractions that are receiving use that threatens their Wilderness values.

Priorities for I&E efforts are to:

- Encourage behavior which protects Wilderness resources such as the "no-trace" message.
- Inform visitors of alternate areas to visit that will satisfy their needs.
- Inform users of Wilderness management goals and objectives.
- Explain various management actions (i.e., sign removal, trail construction, trail maintenance standards, etc.)

Visitor Contacts Most personal contacts of Wilderness users will be outside the Wilderness. When contacts are made inside the Wilderness they will be to emphasize current conditions, specific resource needs, or visitor conduct problems.

Signs and Maps Wilderness signing will be reduced by providing, or assisting the private sector in producing accurate maps of each Wilderness.

Scientific and Research Programs Scientific studies, research, and educational programs are appropriate within the Wilderness as long as they do not degrade Wilderness values. Only those studies and programs that absolutely require a Wilderness environment will be permitted.

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[2] Memorandum of Agreement between the U.S Forest Service, PNW Region, and the State of Oregon Department of Environmental Quality of October 18, 1972.

ADMINISTRATIVE COORDINATION

Forest Service Coordination Each Wilderness will be managed as a single unit regardless of administrative boundaries.

Periodically, usually on an annual basis, meetings will be held between adjacent Forests administering the same Wilderness. The purpose will be to:

1. Maintain continuity and consistency in Wilderness management decisions.
2. Review and discuss priorities for the use of available resources, both money and people.
3. Review trail maintenance schedules.
4. Review outfitter/guide permit administration.
5. Coordinate joint training of Wilderness management personnel to achieve consistency in public contact, program accomplishment, and law enforcement.

Cooperation with Other Agencies The Forest Service will develop a cooperative process which allows other agencies, such as the Oregon Department of Fish and Wildlife, to meet their responsibilities within Wilderness while meeting the management objectives of the area.

Search and Rescue The County Sheriff's have the responsibility for search and rescue of lost or injured visitors. The Forest will provide assistance, within its capacity, when requested by the County Sheriff. The Forest Supervisor must approve the use of motorized equipment for search and rescue operations within Wilderness. Approval is normally given on a case-by-case basis.

Structures Construction of facilities will generally be avoided. Facilities may be allowed only when needed to attain Wilderness objectives. They will be designed and placed to minimize their intrusion upon the Wilderness setting and will not be for the comfort or convenience of the users.

Toilets Toilets, generally of the primitive type, may be provided but only for the protection of Wilderness values and where there is a distinct hazard to health and safety. Toilets should not be used in the primitive WROS zones.

ACTIVITIES

Wilderness Dependent Activities When conflicts develop between Wilderness activities they will be resolved in favor of those activities (1) that will least alter the Wilderness environment, and (2) that are most dependent upon the Wilderness environment. Some activities may be restricted or controlled to preserve the opportunities for solitude and primitive recreation experiences.

Contests, races, promotions, or fund rasiers of any kind will not be permitted in Wilderness. This includes foot races, competitive trail rides, survival contests, military exercises, and other similar activities.

CAPACITY

Regulations[3] require that Wilderness management plans establish maximum levels of use within Wilderness that will allow natural processes to operate fully and not impair the values for which Wilderness were created.

Capacities for each Wilderness have been developed and are contained in the Wilderness Plans (Appendix 4). These figures represent the best data available at this time.

Limits of Acceptable Change Forest Service Researchers have been working on a new system for establishing Wilderness capacity called the Limits of Acceptable Change (LAC).[4] This concept recognizes that change is natural and seeks to ask the question "how much change is acceptable". The system also recognizes that much of the impact of Wilderness use is not the result of too much use, but rather the kind of use, their behavior, the timing, and distribution of use.

The amount of use is not always directly related to the amount of impact. A little use in a new area may cause significant changes, while a lot more use to the same area often causes only a little more impact.

The Forest plans to implement this system for determining capacities during the next planning period. The following are the proposed standards:

Transition and Semiprimitive Classes	Differences in site vegetation is distinct and obvious compared to surrounding area. Exposed mineral soil without a duff layer may be present on 75 percent of the area around a campsite as well as at viewpoints and at waters edge. Tree roots often exposed especially where horse use exists on 50 percent of area. User built "improvements" are tolerated as long as they are in keeping with the setting. These include fire rings, firewood stashes, log or stone seats and tables, leveled tent pads, and rearrangement of rocks in streams and shore lines.
Primitive Class	Ground vegetation may be worn away around fire rings or center of activity, but not exceeding 25 percent of site. Humus and litter still present on 75 percent of site. Site recognized up close, but blends in from a distance. Some mineral soil exposed on 25 percent of a campsite, usually around tent and fire areas. May find tree roots exposed on 10 percent of the trees at destination locations. User built "improvements" generally are not compatible in this class. Designated camp spots and ban on fire rings may become necessary to control use, but the area is not to appear highly improved.
Primitive Trail-Classes	Ground vegetation may be flattened or show some wear and tear, but not permanently injured; able to recover in two seasons. Camp areas not highly recognizable by the average viewer. Bare mineral soil caused by users is rare to nonexistent. Any exposed tree roots indicate need for mitigation. User built "improvements" are not in keeping with the character of these classes. Efforts will be made to prevent their occurrence and if constructed, they will be removed. User built trails in the Trailless class are tolerated.

If Wilderness use exceeds the numbers established in Appendix 4 or the capacities established through the Limits of Acceptable Change, the following corrective actions will be taken.

First Action - Public Information and Site Restoration

- Deemphasize attraction of excessively used areas and promote use of alternative areas.
- Inform public (public service media messages, portal notices, personal contact) of the type of campsite and the characteristics of sites they want to avoid.
- Adjust or remove administrative and informational signing.
- Emphasize "no-trace camping".
- Remove or reduce any facilities contributing to concentration of use beyond capacity.

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[3] 36 CFR 219, 12(f)(1)

[4] The Limits of Acceptable Change system for Wilderness planning, Intermountain Forest and Range Experiment Station, 507 25th Street, Ogden, Utah., George H. Stankey. Also: Limits of Acceptable Change: A new Framework for Managing the Bob Marshall Wilderness Complex," George H. Stankey, Stephen F. McCool, Gerald L. Stokes, from Western Wildlands, Fall 1984.

- Decrease or reduce accessibility.
- If fishing is attracting excessive use to an area, coordinate with Oregon Department of Fish and Wildlife to determine if adjustments in the fish management program could reduce use.
- Revegetate damaged and impacted areas and post a site restoration message.
- Restrict commercial outfitter guide use of area.

Second Action - Use of Regulations

If the first action is unsuccessful, restrict activities by regulation. Possible additional actions include:

- Limit or ban campfires.
- Designate campsites.
- Require minimum spacing between campsites.
- Impose a distance setback of campsites from water and trails.
- Restrict types of use in the area or on trails leading to it, i.e., restrict overnight or horse use.
- Limit length of stay.
- Close revegetated campsites.
- Close the area to overnight use by commercial outfitter guides, and limit their day use.
- Install toilet facilities to correct major sanitation problems.

Third Action - Restrict Number of Users

If the first and second actions fail, restrict numbers of visitors to capacity level. Possible actions, in addition to previous efforts, are:

- Allow only day use.
- Restrict time of entries.
- Restrict number of entries per trailhead.
- Restrict group size.

Fourth Action - Close Area to All Users

If first, second, and third actions are not successf a zone can be closed to all recreation use until th area is rehabilitated and restored to Wilderness conditions.

Steps 2 through 4 require approval of the Forest Supervisor. There should be agreement on these actions between Forests if the area is influenced people from both Forests.

VEGETATION MANAGEMENT

Wilderness will not be managed for commercial timber production.

Natural ecological processes of plant succession will be allowed to continue. This includes those ecological systems dependent on the natural role fire.

Live trees may be utilized for administrative purposes such as trail bridges. Location of cut trees will be out of sight from common travelways or camping areas.

Wood fires or firewood gathering may be prohibit in areas where demand for firewood is exceeding local supply and noticeable impacts from firewoo gathering are degrading the Wilderness resource

Dead standing and down vegetation shall be managed to approximate natural conditions.

Revegetation of impacted areas will be as follow

- Only native species will be used for site revegetation.
- Areas to be revegetated may be closed until they are considered reestablished. Temporar signing or fencing may be used if absolutely needed.
- Revegetation work should be achieved in a manner which best meets the needs of an i dividual site. Work can be accomplished usi the following procedures singly or in combination:
- Rest only (eliminating use for a period allow natural revegetation to occur).

- Rest, seedbed preparation, natural revegetation (seedbed preparation by disturbing the ground surface, i.e., spading).
- Rest, seedbed preparation, planting (use onlv native species).
- Fertilizer may be used on a limited basis to stimulate initial growth.

LIVESTOCK

Domestic Livestock Grazing of domestic livestock, other than for recreation purposes, will be permitted in only those portions of the Wilderness where grazing was established prior to the area's Wilderness designation.

- Range allotment plans will specify requirements and actions needed to meet Wilderness objectives.
- Permittees will be encouraged to install and replace range improvement and range management facilities by utilizing native material when practical.

Recreation Livestock—Grazing by recreation livestock, such as saddle horses and pack stock, will be closely monitored and controlled to prevent resource damage. Use of pelletized feed and tethering of stock away from water, travel routes, and critical areas are actions that may be required.

Pets — Pets must be under reliable voice control and/or physical restraint to protect both people and wildlife.

SOIL AND WATER

Naturally occurring erosion processes will be allowed to continue unless they intolerably impact other Wilderness resources or resources outside the Wilderness.

Accelerated loss of surface soils due to visitor use should be corrected using native materials and vegetation and then limited to a rate that approximates the natural process.

Trails, will be located, and/or relocated, to avoid sensitive and wet soil areas, such as in meadows, lake shorelines, and riparian areas.

Soil compaction shall not exceed limits which will prevent natural plant establishment and growth except at designated camps, administrative sites, and trails.

Wilderness use which is impacting water quality will be controlled or eliminated.

No efforts to increase natural water yields through modifying plant cover or the soil mantle will be permitted.

There are no dams under special-use permit or other authority in any Wilderness on the Deschutes National Forest and no permits are pending. No dams will be permitted unless approved by the President of the United States.

ROADS AND HELISPOTS

Existing Roads Roads are not permitted in Wilderness. Existing roads will be closed and allowed to return to their natural condition.

New Roads New roads outside Wilderness or the upgrading of existing roads may provide new Wilderness access, and change existing use patterns. Before any new roads are built near the Wilderness boundary or existing roads improved, their potential impact will be evaluated. Appropriate actions will be taken to mitigate any adverse impact.

Helispots. Permanent helispots may be permitted when approved by the Forest Supervisor.

TRAILS

Trails will provide users with opportunities to test skills, experience physical exertion and accomplishment.

Trails may be constructed and maintained:

- For safety of visitors.
- To minimize or prevent resource damage.
- To distribute use.
- As legislatively directed.

Trails will be designed, constructed, or relocated to the minimum standard needed to achieve their purpose. Most trails will receive Level I or II maintenance. The Pacific Crest National Scenic Trail (PCNST) will be maintained at Level III.

The adequacy of each trail system within each Wilderness will be assessed to determine its effectiveness in meeting Wilderness objectives. Corrective action will be implemented when any impact is intolerable or beyond that necessary to accomplish the purpose of the trail system.

Trail systems will normally not be expanded into current untrailed areas that are providing opportunities for solitude and primitive recreation. Exceptions must be approved by the Forest Supervisor.

A range of trail travel opportunities for horse and hiker will be provided as necessary to accommodate the expected use. Parallel hiker/horse trails will not be provided.

The Pacific Crest National Scenic Trail (PCNST) will be managed to meet Wilderness objectives where it traverses Wilderness areas. It will be relocated only to meet Wilderness objectives.

Use of native, local materials will be emphasized in trail construction and maintenance.

Bridges and culverts will not be installed for visitor convenience, but may be established for safety or resource protection needs.

Trails should follow the natural contours of the land to the extent feasible, and result in minimum disturbance to soil and ground cover.

Trailside snags will normally not be felled unless they present a definite and immediate safety hazard.

SIGNS

Signing will not be provided for visitor convenience or for environmental interpretation within Wilderness boundaries. Such signing may be appropriate at trailheads or on routes leading into the Wilderness.

Directional signing may be placed at trail intersections. This signing with minimal exceptions will indicate a destination point such as a trail intersection, and not a landmark or special attraction such as a lake. Wherever possible, excessively used areas will not be indicated. Distances to destination points will not be included on signs within the Wilderness, but may be indicated on signs at locations outside of the Wilderness. A maximum of two directional signs with the two destinations each will be placed at trail junctions.

Regulatory or informational signs may be used in situations where control of excessive resource damage is needed and other corrective actions are unsuccessful. Only the minimum number of signs needed will be installed.

The Regional standard of signing motif (color, lettering, and design) for Wilderness will be used for all Wilderness signs. Existing signs that do not meet standards, however, will not be replaced until they are no longer serviceable.

Signs will be mounted on trees whenever possible.

Fire Management

Fire, or its absence, has probably had a more profound effect on natural life systems than any other single factor or a combination of factors. Natural fire has been a part of the ecology of the Wilderness since creation, and man's efforts to ban this agent may have resulted in significant ecological changes in the flora and fauna of some areas. Similarly, fire accidentally or purposefully induced in Wilderness has interfered with the natural processes. In keeping with this, fires resulting from man and his activities must be prevented and/or suppressed. Naturally occurring fires will be allowed to more fully play their natural role in the ecology of the area. When natural fires threaten life and/or property within the Wilderness, or when unacceptable damage to life, resources, or property outside the Wilderness is imminent, they shall be controlled as well.

Fire management activities within Wilderness will be compatible with overall Wilderness management objectives. Preference will be given to methods and equipment that cause the least:

- Alteration of the Wilderness landscape.
- Disturbance of the land surface.
- Disturbance to visitor solitude.
- Reduction of visibility during periods of visitor use.
- Adverse effects on other air quality related values.

The following are general suppression standards:

- Wet line shall be preferred over regular handline construction.
- Snags that do not present a hazard to life, or a threat to successful suppression action should not be felled.
- Cross-cut saws shall be appropriate equipment unless cost and safety benefits outweigh the short-term Wilderness noise disturbance.
- When possible, bury stumps and logs, or remove them from the fire to prevent spot fire sources.
- Minimal-width fire lines will be constructed manually in conjunction with careful patrolling.
- The fire shall be allowed to burn out naturally within control lines. Restoration of the fire area should begin as soon as possible.
- The use of mechanized equipment (portable pumps, power saws, etc.) in the suppression effort must be approved case by case, based on the Wilderness management objectives.
- The use of tractors or ground disturbing equipment must be approved by the Regional Forester.

Whenever suppression actions are taken, all practical efforts will be made to restore the site to a natural condition after the fire is out.

The Wilderness will be evaluated to determine if prescribed burning is needed to maintain or reestablish natural ecosystems, particularly those dependent on the occurrence of wildfire.

Fuel accumulations should be allowed to develop at naturally occurring levels for each individual ecosystem. This will allow for varying fuel levels over time due to the effects and recovery from fire.

Commercial Use

In addition to the direction contained in the "Forest-wide Standards and Guidelines for Recreation Special Uses, the following direction applies specifically to Wilderness acres.

Necessary Services Section 4(d) of the Wilderness Act states that, "Commercial Services may be performed--to the extent necessary for activities which are proper for realizing the recreational or other Wilderness purposes of the area."

Those services determined necessary will be managed through a special-use permit.

Various types of animal packers, including horse and llama packers, are now operating within several Wildernesses. Some of these services such as packing for hunting trips are considered "necessary" for the use of the Wilderness in accordance with the Wilderness Act. Other activities which do not provide the Wilderness Recreation Opportunity Spectrum (WROS) experience that the area is being managed for are not appropriate. Permits for animal packers will be allowed to continue at no more than levels where they currently exist. If any one of the existing permits is transferred or terminated, the need for that use will be reevaluated; and it may be eliminated or continued at current levels.

Educational programs that teach primitive skills, survival skills, Wilderness ethics, etc., are also considered to provide necessary services and they are also classified as "commercial" under existing regulations. The majority of this use is from public agencies such as colleges and universities. A number of private, nonprofit corporations such as Outward Bound also offer education programs in a Wilderness setting. These programs will be allowed to increase approximately 20 percent over current levels for summer operations. Wintertime educational programs are very limited at this time and they will be allowed to grow to summertime levels. Commercial operations other than those described above are not considered necessary for the use of Wilderness in the summer season. Existing permits for non-necessary services will be phased out when permits expire or when the opportunity exists. No limits will be placed on commercial services in the winter season at this time. Also, no limits will be placed on commercial services in the Mt. Thielson or Diamond Peak Wildernesses but all permits must meet the "need" test.

The individual Wilderness Management Plans in Appendix 4 contain a table listing the amount of permitted commercial use.

- Commercial use will not be permitted in heavy use areas.
- When Wilderness use capacities are reached, commercial use will be reduced to allow for other public use.

- Any new commercial services determined necessary for the use of the Wilderness will be advertised through the prospectus process.

- Efforts will be made to manage commercial use with fewer permittees so that those who remain in business will be economical operations that provide a high quality public service.

- Existing permittees may be expected to provide services in other areas of the Forest, outside their normal operating area.

- Commercial operators will be expected to pay or contribute their fair share of trail maintenance and other resource damage costs caused by their operations. This will become a condition of the special-use permit.

- All commercial use permits will be evaluated every year.

Fish and Wildlife

Stocking may continue at lakes and streams where it has historically occurred. Stocking will not be expanded to barren waters unless it would help achieve Wilderness management goals.

Native species will normally be encouraged in the stocking program.

Aircraft stocking will only be permitted on those lakes stocked by aircraft prior to 1964. No landing of aircraft is permitted. Stocking should be done before and after the visitor season if possible.

Chemical treatment of waters is permitted for the reestablishment of native species or establishment of threatened and endangered aquatic species or to correct undesirable conditions resulting from the influence of human activity.

Management activities and decisions will emphasize maintaining native species with particular emphasis on habitat requirements of threatened and endangered species. Indigenous species may be reestablished. Threatened and endangered species may be established to correct the undesirable influences of human activities.

Visitor activity may be regulated on a seasonal basis to minimize the impact to wildlife.

Insects and Disease

Pest populations will be monitored so that early detection of problems is possible.

No action will be taken to control naturally occur insect or disease populations within Wilderness, unless adjacent areas outside Wilderness are threatened. In that case an environmental analys using the NEPA process will be conducted to de mine what, if any, suppression actions will be ta Any control measures will be designed to have t least adverse impact possible on the Wilderness resource.

Mineral and Energy Development

When valid leasing and mining activities which might cause significant disturbance of the surfac resources are proposed, the Forest will review th proposal, notice of intent, and/or operating plan developed by the proponent. The Forest's review and approval will be directed toward minimizing, mitigating, preventing, or repairing adverse environmental impacts on Wilderness values and i restoring the site. The review and assessment o leasing applications will produce a recommenda to the Bureau of Land Management on whether grant or deny a lease and the use of stipulation that will control management of surface resourc for granted leases. This review should involve c dination with other National Forests having man ment responsibility for portions of the same Wilderness area. The Forest may impose reasonable conditions which will not interfere wi the mining operation or the statutory rights of th claimant.

Geothermal leasing will not be permitted in Wilderness.

Cultrual Resources

Cultural and historic resources shall be invento by a qualified professional.

- All structures will be evaluated for their historical significance.

- After evaluation, any decision to maintain c abandon but not remove structures which r the criteria for the National Register shall b preceded by the process outlined in 36 CF 800 for comment by the Advisory Council c

Historic Preservation. Abandoned structures will be allowed to deteriorate naturally after following procedures outlined in 36 CFR 800. Any retained or maintained structure will be managed to have a minimum impact on the Wilderness resource.

- If it is determined, after historical evaluation, that a structure is not of significance, it will be removed by a practical method compatible with the goals of this plan and the site will be restored to as natural a condition as is practical.

MANAGEMENT AREA 7 (Deer Habitat)

Goal

To manage vegetation to provide optimum habitat conditions on deer transition ranges while providing for domestic livestock forage and wood products.

Prescription

Wildlife

Management for transition ranges will be designed to achieve the following habitat conditions.

Cover

Habitat should be managed to provide for an average of 40 percent thermal cover through time.

Forage

Maintain or improve forage conditions with emphasis on increasing the variety of plants available for forage and a mixture of age classes of shrubs. Create variety in areas which are dominated by poor vigor shrubs. Establish species so that a variety of shrubs, grasses, and forbs are available. Emphasis will be on providing grasses and forbs in areas currently dominated by shrubs.

Where forage improvement activities which are not directly associated with manipulation of the tree stands (crushing, prescribed burning) are planned, the size of the treatment units normally will be 300 to 500 acres. If more than one unit is treated in a single year, treatment units should be 600 to 1,200 feet apart. The untreated portion of the area involved can be improved after the treated areas are approximately 10 years old.

Arrangement

If foraging areas are created through timber harvesting, design the units to be irregularly shaped and no more than 600 feet from cover at any point. Maintain thermal cover immediately adjacent to the foraging site. The stands providing cover can be in different age classes with the younger stands providing better quality cover and the older stands providing a lesser quality cover. The long-term situation would be an irregular mosaic of openings intermingled within tree stands. As an opening is reestablished with trees and qualifies as cover, adjacent areas would be harvested to maintain forage-producing areas.

Timber

Timber management prescriptions will be applied to meet the wildlife habitat objectives. A timber harvest schedule has been developed. The following prescriptions apply.

Ponderosa Pine - Suitable Timber Lands

Rotation age will be 90-110 years.

Even-aged management will be the normal regeneration prescription and includes precommercial and commercial thinnings. Stocking levels will be based on site-specific conditions. A crown closure greater than 40 percent with trees 30 feet high is recommended for thermal cover.

Prescribed burning is recommended for site preparation where soil conditions and fuels permit.

Silvicultural prescriptions will be based on the Timber Management Standards and Guidelines and Deer Habitat objectives.

Lodgepole Pine - Suitable Timber Lands

The mountain pine beetle epidemic has been defined as a catastrophe in some mature, infested, and susceptible stands of lodgepole pine. These stands are to be converted in 15 years while maintaining 25 percent of an area in cover. Cover requirements should be based on areas of 4,000 to 10,000 acres.

Ponderosa Pine - Not Suited Timber Lands

The timber harvest will be nonchargeable.

1. **If the objective is to produce cover:**
   a. Regeneration harvesting normally will be shelterwoods. Planting will be used where necessary to establish new stands. Some slash will be left to protect the site and to provide shade for the seedlings.

   b. Precommercially thin the stands when they are 15 feet tall. No commercial thinning is allowed.

c. Maintain cover adjacent to new stands until the new stand is 30 feet tall and qualifies for cover itself.

d. Plantations will be protected from deer and/or livestock. Shading of newly planted trees may be necessary.

2. **If the objective is to produce forage:**

a. Silvicultural prescription will normally be shelterwood followed by prescribed fire or crushing.

b. Regenerate naturally with supplemental planting if necessary.

Fuelwood

Fuelwood gathering will be coordinated with winter road closures, and seasonal restrictions will apply during the winter and spring. Fuelwood gathering by both commercial and personal use permits will be allowed in conjunction with timber management activities or in designated fuelwood gathering areas.

Fire Management

Wildfire

High intensity burns can help maintain diversity. Burnout from existing barriers or scratch lines will be a legitimate suppression tactic. Natural burnout will be the preferred mopup method where predicted weather conditions permit.

Fires within 300 feet of guzzlers shall be extinguished and the improvements protected. Snags that do not present a hazard to life or a threat to successful suppression action should not be felled.

Maximum annual low intensity burn acre objectives for the area are 2.5 percent and 500 acres per occurrence.

Maximum annual high intensity burn acre objectives for the area are 1 percent and 500 acres per occurrence.

Prescribed Burning

The prescribed use of fire will be necessary to maintain diversity within the plant communities. Burning prescriptions should provide for the reestablishment of bitterbrush within 20 years. Approximately 2.5 percent of the Management Area could be burned over annually.

Fuel Treatment Other Than Prescribed Burning

In that portion of the Management Area designated nonsuitable for timber, the preferred slash treatment method is to lop and scatter. In areas of heavy slash, machine piling and burning may be necessary. Crushing is the least preferred method for treating slash.

Fuel Loading

Optimum fuel loadings should be guided by the following photo series.

Natural fuels	8PP4, 3PP3
Thinning fuels	4PP1TH, 1MC3PC
Partial cut	1MC3PC
Clearcut	1LP3PC

These are found in "Photo Series for Quantifying Forest Residues," cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Transportation

Unneeded roads will be obliterated. Local roads may be closed on a seasonal basis. Road closures will be coordinated with the Oregon Department of Fish and Wildlife.

Range

Forage utilization by livestock will be maintained at a level so that sufficient forage is available to support the desired number of deer. Grazing systems, stocking levels, forage use standards, and range improvement projects will be designed to be compatible with or complementary to the habitat objectives for deer.

Allotment management plans will be written to reflect the management direction for this Management Area. They will include the grazing system to be used, season of use, class of livestock, stocking levels, range improvements needed, and forage production and utilization standards.

Recreation

The area will provide various dispersed recreation opportunities primarily for the activities of viewing wildlife, hunting, gathering forest products, and roaded camping. Restrictions on motorized and ORV recreation could be implemented on a seasonal basis between December 1 and March 31 and during big game seasons. Closures and restrictions can be imposed on ORV activity where it threatens or damages other resource values, such as plantations, wildlife, and soils. Provisions will be made in the silvicultural and grazing prescriptions for maintaining amenities around developed campsites and areas where traditional concentrated recreation use occurs. Rustic facilities constructed of native materials may be provided for the convenience of the user as well as for safety and resource protection.

Provision of the recreation setting, activity, and experience opportunities for the Recreation Opportunity Spectrum category of Roaded-Natural will be an objective in Recreation Management. (See Appendix 2 for an explanation of the categories.)

Visual

Along major roads, wildlife habitat improvement projects should be located, shaped, and timed to reduce visual impacts.

Integrated Pest Management

Prevention

Monitoring and vegetative management will emphasize prevention of damage or loss of resource production because of pests.

Suppression

Suppression action should be taken when pests are adversely affecting forage production or cover.

Special Uses

Special uses which do not have constant human activities will be acceptable. Use which results in constant activity would have to be evaluated on a case-by-case basis.

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MANAGEMENT AREA 8 (General Forest)

Goal

To provide optimum and sustainable levels of timber while providing forage production and opportunities for public use and enjoyment.

Prescription

Timber

Management prescriptions are a schedule of silvicultural practices for regenerating, growing, and harvesting stands of timber. They are based upon the silvicultural and ecological characteristics of the specific working group to which they apply. For harvest scheduling purposes, timber on the Deschutes was classified into ponderosa pine, lodgepole pine, mixed conifer, or mountain hemlock working groups.

Alternative prescriptions ranging from low to high levels of investments were developed for the ponderosa pine, lodgepole, and mixed conifer working groups. One low level investment for mountain hemlock was developed. The timber yields and rotation ages varied by working group and investment level. The prescriptions selected for each working group were determined by the FORPLAN timber harvest scheduling model. The objective for using the model was to develop the most economically efficient mix of prescriptions.

Some adjustments in the prescriptions selected may occur based on the site capability and silvicultural prescriptions prepared under the Timber Management Standards and Guidelines in Chapter 4. Table 4-14 displays the mix of prescriptions selected for managed stands for each working group in Management Area 8.Presented are both the managed stand prescriptions for natural stands which are harvested during the first decade as well as those for managed stands throughout the 150 year harvest scheduling planning horizon.

The mountain pine beetle epidemic in some of the mature lodgepole pine has been defined as a catastrophe. The mature infested and susceptible stands are to be converted in 15 years. To accomplish this, Management Standard and Guideline 2-1 in Pacific Northwest Regional Guide of May 1984 which permits exceptions to the created Forest opening size of 40 acres when natural catastrophic situations occur will apply. Therefore, Harvest created openings can exceed 40 acres in size in the lodgepole pine working group.

Timber harvesting and postharvesting activities, particularly tree planting on suitable lands, should be scheduled to accommodate grazing systems where and when appropriate. Timber management and range conflicts must be resolved so there is enough forage available to prevent overgrazing and so the number of AUM's will not be reduced.

Range

Allotments will be managed to achieve or maintain a forage condition rating of fair or better or to the site's capability.

Transitory range will be managed in conjunction with timber management to achieve higher levels of forage production and the desired level of forage utilization. Livestock grazing on transitory ranges will take place under the following situations:

1. Where forage occurs as a result of site disturbance and/or timber canopy removal on a continuing basis.

2. Where disturbed sites and/or areas under timber management can be seeded with species which improve forage production and do not restrict tree establishment and growth.

3. On forest plantations when livestock will not damage the young trees. Success will require close and continuous coordination between grazing and reforestation to integrate these two activities.

Range allotment management plans will be written to reflect the management direction for all range lands within this Management Area. They will include the grazing system to be used, season of use, class of livestock, stocking levels, range improvements needed, and forage production and utilization rates.

Annual permittee plans will provide for livestock distribution and use patterns to protect newly established tree plantations. Plantations can be further protected by fencing, caging trees, or use of repellents. Salt and water should be placed no closer than one half to 1 mile away from new plantations. Where conflicts cannot be resolved by using

Table 4-14 Timber Prescriptions Selected for Managed Stands in the General Forest Management Area

Working Group	Prescription[1]	% Selected After Final Harvest in First Decade	% Selected Over the 150 Year Sched. Horizon
PNN	1. Overstory Removal, Precommercial Thin Understory. Commercial Thins, Final Harvest	100%	20%
	2. Plant, Precommercial Thin, Commercial Thins, Final Harvest	0%	20%
	3. Natural Regen, Precommercial Thin, Commercial Thins, Final Harvest	0%	2%
	4. Plant, Commercial Thins, Final Harvest	0%	56%
	5. Natural Regen, Commercial Thins, Final Harvest	0%	2%
	6. Plant, Precommercial Thin, Final Harvest	0%	0%
	7. Natural Regen, Precommercial Thin, Final Harvest	0%	0%
	8. Plant, Final Harvest	0%	0%
	9. Natural Regen, Final Harvest	0%	%
LLP	1. Natural Regen/Plant, Preceommercial Thin (17x17), Commercial Thins, Final Harvest	0%	0%
	2. Natural Regen/Plant, Precommercial Thin (15x15), Commercial Thins, Final Harvest	37%	50%
	3. Natural Regen/Plant, Precommercial Thin (12x12), Commercial Thins, Final Harvest	39%	24%
	4. Natural Regen/Plant, Precommercial Thin (10x10), Commercial Thins, Final Harvest	0%	0%
	5. Natural Regen/Plant, Commercial Thins, Final Harvest	0%	3%
	6. Natural Regen/Plant, Final Harvest	24%	23%
MC	1. Plant, Precommercial Thin, Commercial Thins, Final Harvest	0%	62%
	2. Plant, Commercial Thins, Final Harvest	100%	38%
	3. Plant, Precommercial Thin, Final Harvest	0%	0%
	4. Plant, Final Harvest	0%	0%
MH	1. Natural Regen, Final Harvest	0%	0%

[1] Some notes on prescriptions:

1. Most of these prescriptions identify the way new stands will be managed once the existing stand is harvested. The exception to this is the overstory removal removal prescriptions for ponderosa pine. It identifies how the understory is intended to be managed once the overstory of an existing two-storied stand is removed.
2. The assumption is that ponderosa pine and mixed conifer stands will be planted, while lodgepole pine will be regenerated naturally 80 percent of the time and planted 20 percent of the time. Mountain hemlock will be regenerated naturally.
3. While the specific type of final harvest is not identified, prescriptions which call for natural regen will most likely be the results of either shelterwood or seedtree cuts, while the planted stands will most likely be clearcut.
4. The actual number of commercial thins which may occur will depend on working groups, site, harvest scheduling needs, and other factors. Generally, from 1 to 3 thinnings may be expected.

above the techniques, establishment of new allotments and relocation of livestock should be considered.

Transportation

Roads constructed within this Management Area will generally be planned to serve a larger timber volume than in other areas. The existing and planned facilities must be closely analyzed to establish the proper funding source for the required road work.

Temporary roads built for resource activities such as timber sales must be obliterated.

Wildlife

In elk and deer summer range, particularly in lodgepole pine, provide hiding cover on 25 percent of the area being treated. The area of consideration should be large enough so that meaningful cover arrangements can be determined. Normally the size of area to evaluate should be between 4,000 and 10,000 acres in size. Cover patches should range from 10 to 40 acres in size and be arranged so that cover is no further than 600 to 700 feet from any point within the area. Cutting units should have irregular boundaries. In other communities (ponderosa pine, mixed conifer) cutting unit size restrictions and constraints on scheduled harvesting make adequate cover available.

Hiding cover is a stand of trees that (1) is larger than 10 acres and has trees taller than 6 feet, and (2) is well stocked, so that an animal is 90 percent hidden at a distance of 150 to 200 feet. Stands retained for cover during the first entry should not be treated until at least 25 percent of the treated area qualifies as hiding cover.

Provisions for control of vehicle access will be considered during transportation planning in areas with high-quality summer habitat for deer and elk.

Timber harvesting and/or thinning will provide screening between treatment areas and roads with continuous vehicle use. Normally these will be arterial or collector roads. Roads with continuous use are main roads in good condition with regular maintenance. The screen should be 200 feet wide or dense enough to hide 90 percent of a deer or an elk from view. Screens need not be continuous but gaps between screens should not exceed one quarter mile.

Recreation

The majority of campgrounds and picnic areas will be managed at development Level 2. (See Appendix 3 for a description of the various levels.) Some will be managed at Level 3, but none will exceed Level 3. Stands on these sites will be treated to retain the character that contributes to the value of the site for recreation.

Traditional informal campsites, hunter camps, or areas where concentrated recreation use occurs will be recognized as being significant in producing and utilizing dispersed recreation opportunities. Prescriptions for harvesting, cleanup, site preparation, and thinning will consider the environmental setting that contributes to the attraction of these sites for recreation purposes. Attempt should be made to retain this attractive character during and after treatments.

Recreation use can be discouraged or prohibited:

1. In areas where timber harvesting activities are occurring.
2. Where public safety is being threatened.
3. Where resource damage from recreation activity is occurring or may occur.

Generally, off-road vehicle use is allowed unless they prove to be damaging the resource values. Closures and restrictions will be established where over the snow vehicles use will threaten or damage other resource values, such as plantations, soils, and wildlife. In those areas where resource values may be threatened by off-road vehicle use, over-the-snow vehicles may be permitted when the depth of continuous snow cover is adequate to protect other resources from adverse impacts. Some roads, trails, or areas may be designated for nonmotorized winter activities such as cross country skiing to the exclusion of over the snow vehicles and other motorized equipment.

This Management Area will be managed to provide the recreation activity, setting, and experience of the Recreation Opportunity Spectrum category of Roaded-Natural or Roaded Modified. (See Appendix 2 for an explanation of the categories.)

Fire Management

Wildfire

Suppression practices will be designed to protect the investment in managed tree stands and to prevent losses of large acreages to wildfire.

Appropriate fire management practices may vary from confinement on a self- contained fire to full scale control on high intensity fires. Snags that do not present a hazard to life or a threat to successful suppression action should not be felled.

In ponderosa pine stands (except for reproduction stands) emphasis should be placed on burning out from existing roads and natural barriers rather than constructing new firelines.

The maximum low intensity burn acre objectives in the area in ponderosa pine are 4 percent of the Management Area per year[5] and 300 acres per occurrence. In areas of ponderosa pine reproduction, fires should not exceed 10 acres per occurrence.

The maximum low intensity burn acre objectives in the area are 1 percent per year for each of the following species: mixed conifer, lodgepole pine, and mountain hemlock and are 10 acres per occurrence.

The maximum high intensity burn acre objectives in the area for all species are .5 percent per year and 10 acres per occurrence.

Prescribed Fire

Prescribed fire may be used to protect, maintain, and enhance timber and forage production. The broadest application of prescribed fire will occur in the ponderosa pine type. Criteria for utilizing fire are as follows:

1. To reduce risk of conflagration fire.
2. To increase soil productivity by cycling bound nutrients.
3. To prevent encroachment of less desirable, competing tree species.
4. To increase palatability and cover of desirable forage species.
5. To prepare sites for reforestation.

Fuel Treatment Other Than Prescribed Fire

The lowest cost option which meets the silvicultural, soil, water, and fire objectives should be selected.

Fuel Loadings

Slash will be treated to minimize chances of large wildfires but will not be cleared to the point that the forest floor is devoid of all slash and logs. Some slash and larger dead material will be left for ground cover for soil protection, microclimates for establishment of trees, and small mammal habitat.

Optimum fuel loadings should be guided by the following photo series.

	PP	LP	MC-MH
Thinning	1-MC-3-PC 4-PP-1-TH	1-MC-3-PC 1-PP-1-TH	1-MC-3-PC 1-PP-1-TH
Partial Cut	4-TF-4-RC 2-LP-3-PC	2-LP-3-PC	2-MC-4-PC 2-TF-4-RC
Clearcut	2-MC-4-RC 1-LP-3-PC	1-LP-3-CC	3-TF-4-RC 2-MC-4-RC

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Visual

Visual quality will be considered in scheduling; determining unit sizes, configurations, and locations; and other aspects of activities that may adversely affect visual quality. Visual quality will be provided, to the extent possible, without reduction of timber outputs. Created openings will be shaped and blended to the natural terrain, to the extent practicable.

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[5] Includes prescribed burning

Integrated Pest Management

Prevention

Monitoring and vegetative management will emphasize prevention of damage or loss of resource production because of pests.

Suppression

Take immediate suppression action utilizing principles and techniques that reduce damage and losses and prevent future pest problems from occurring.

MANAGEMENT AREA 9 (Scenic Views)

Goal

To provide Forest visitors with visually appealing scenery.

Prescription

Visual

The following criteria apply for lands in this Management Area.

Retention

Results of activities may not be visually evident. Activities may only repeat form, line, color, and texture which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, and pattern should not be evident.

Unacceptable changes in form, line, color, or texture as a result of management activities will be corrected during the operation or immediately after.

Insect and disease activity or catastrophic occurrences may require short-term deviation from visual objectives.

Partial Retention

Management activities may be visually evident but remain visually subordinate to the characteristic landscape.

Activities may repeat form, line, color, or texture common to the characteristic landscape, but changes in their qualities of size, amount, intensity, direction, and pattern must remain visually subordinate to the characteristic landscape.

Activities may also introduce changes in form, line, color, or texture which are found infrequently or not at all in the characteristic landscape, but they must remain subordinate to the visual strength of the characteristic landscape.

Unacceptable changes in form, line, color, or texture as a result of management activities will be corrected within the first year after the activity. The exception would be where prescribed fires are used to manage vegetation. In these situations, they should not be visible after three years.

Insect and disease activity or catastrophic occurrences may require short-term deviation from visual objectives.

Timber

General

Timber management activities will be applied only where needed to meet and perpetuate scenic quality. Even-aged management will be applied to small units to achieve diversity in adjacent stands of different ages. Uneven-aged management or group selection may be used on a case-by-case basis.

A stand should not be treated until trees in adjacent stands are at least 10 feet tall on slopes less than 30 percent and 15 feet tall on slopes over 30 percent.

Silvicultural prescriptions will be developed in accordance with the Silvicultural Standards and Guidelines.

Ponderosa Pine

Foregrounds

In areas up to one quarter mile away from observers the emphasis will be on retaining or creating the overall character of yellowbark pines in open stands, along with a variety of other age classes.

Retention

Rotation age should be approximately 300 years, or long enough to provide yellow-bark pines of 30 inches or greater.

Precommercial thinnings with periodic commercial thinnings may be needed.

Regeneration cutting will normally be by shelterwood.

If clearcuts are used they should generally not exceed 5 acres in the immediate foregrounds.

Three to five trees per acre should be left to die naturally, and should be located to minimize safety concerns.

Partial Retention

Rotation age should be approximately 175 years.

Precommercial thinnings with periodic commercial thinnings may be needed.

Regeneration cutting will normally be by shelterwood.

Three to five trees per acre should be left to die naturally, and should be located to minimize safety concerns.

Mixed Conifer

Foregrounds

A variety of species, snags, and size classes would be retained.

Retention

Rotation age should be approximately 160 years.

Even-aged management should be applied to small units, not to exceed 2 acres, to create diversity.

Four large trees per acre should be left to die naturally, and should be located to minimize safety concerns.

The stands may be precommercially and commercially thinned.

Partial Retention

Rotation age should be approximately 140 years.

Even-aged management should be applied to small areas to create diversity.

Two large trees per acre should be left to die naturally and should be located to minimize safety concerns.

The stands may be precommercially and commercially thinned.

Lodgepole Pine

The mountain pine beetle epidemic in the mature lodgepole pine is a catastrophic situation. The mature infested and susceptible stands are to be converted to younger stands over the next 20 years. By doing this the Retention and Partial Retention Visual Quality Objectives (VQO's) will not be met in many cases. However, long-term management is directed at meeting VQO's as guided by the following prescriptions.

Foreground

In Foregrounds of lodgepole pine the objective is to increase species and size class diversity and to keep trees in a healthy condition while keeping the visual disturbance at a minimum.

Retention

Rotation age should be 110 years.

Stands may be precommercially thinned followed by one or two commercial thinnings.

Ponderosa pine and firs should be emphasized on suitable sites during reforestation.

If clearcuts are used they generally should not exceed 10 acres. A 1- to 2-acre island of healthy trees should be left within the unit for every 10 acres of regeneration harvest.

Partial Retention

Rotation age should be approximately 90 years.

Stands may be precommercially thinned followed by one or two commercial thinnings.

On suitable sites, ponderosa pine and firs should be emphasized.

All Species - Middlegrounds

Stands will be managed according to timber prescriptions for General Forest. The schedule of treatments, however, will be controlled so that normally no more than 10 percent of the seen (not actual) area is in a disturbed condition. Visual objectives will be criteria for determining harvest unit size, configuration, location, logging systems, transportation systems, and other visually important aspects of management.

Fuelwood

Fuelwood gathering is permitted when not in conflict with visual management objectives.

Range

Livestock grazing will be allowed. Grazing may be encouraged to provide added scenic variety.

In retention areas structural range improvements such as fences, water developments, and access roads will be located or designed so they are either not visible from viewing points and routes, or complement the visual quality.

In Partial Retention areas such structures will either be visually subordinate or complement visual quality.

Utilization standards will be established to avoid a beat-out appearance.

Salt blocks, water developments, or other improvements which attract livestock and result in a trampled appearing setting should be avoided in highly sensitive scenic areas. New corrals and loading chutes will be made of native materials and will be designed to be aesthetically pleasing.

Vegetation manipulation such as brush removal, reseeding, and prescribed burning will be designed to meet the visual objectives.

Allotment management plans will be written to reflect the management direction for this Management Area. They will include the grazing system to be used, season of use, class of livestock, stocking levels, range improvements needed, and forage production and utilization standards.

Wildlife

Emphasis will be on habitat improvement for watchable wildlife. When managing stands along sections of major highways which are also deer migration corridors, consideration should be given to minimizing risks of vehicle-deer collisions. Snags that are a safety hazard should be removed. Other snags should be retained.

Transportation

New roads will be located and designed to meet adopted Visual Quality Objectives for the area. Routes likely to be popular with Forest visitors are designed and maintained to provide positive visual experiences.

Signs not needed for traffic regulation should be few in number and located and designed for scenic purposes.

New helispots, gravel pits, and borrow areas will be located out of site from sensitive viewing areas.

Special Uses

Utilities and electronic sites may be located in these areas if the facilities and associated improvements are located, designed, and maintained to meet Visual Quality Objectives when viewed from the travel routes, recreation areas, and viewing points of concern. Highly visible electronic sites will not be permitted in these areas.

Fire Management

Low intensity wildfires will not have long lasting adverse impacts on the visual resource even in the immediate foreground. High intensity fires can adversely affect the resource but in many cases can have a positive effect in providing vistas and diversity in monotonous stands, especially in pure lodgepole pine.

Wildfire

Suppression

Suppression efforts in the immediate foreground should utilize low impact methods. If heavy equipment is necessary, restoration efforts may be needed to mitigate the visual impact.

In middleground and background areas, fires can be suppressed using standard techniques.

Low Intensity Burn Acre Objectives

Burn acre objectives are based more on the time the viewer is exposed to the burn view than on the total acres involved. These are converted to acreages to be compatible with the rest of the management units.

Low intensity fires should not exceed 300 acres per occurrence anywhere in the Management Area.

High Intensity Burn Acre Objectives

The following objectives are maximum areas of high intensity burns within foreground areas next to:

Trails - 50 acres per occurrence.

Lakes and streams - Contain all wildfires within 300 feet.

Roadside ponderosa pine stands - 30 acres per occurrence.

Roadside mixed conifer stands - 30 acres per occurrence.

Roadside lodgepole pine stands - 40 acres per occurrence.

Prescribed Fire

Prescribed fire is acceptable in the Management Area.

Prescribed fire may be used in ponderosa pine stands to develop the visually desirable open stands. See photo 1-PP-4.

Fuel Treatments Other Than Prescribed Burning

Fuel treatments in foreground areas should be planned and timed to avoid being highly visible. In the immediate foreground (within 100 to 150 feet of observers) handpiling, hauling material away, utilizing it for fuelwood, etc., are preferable to machine piling and crushing. Treatment should be completed prior to the next high use season.

In middleground and background areas, fuels may be treated using standard techniques.

Fuel Loadings

In foreground areas slash should be cleaned up to a higher standard than in the middleground and background. Fuel loadings in these areas should be compatible with the visual objectives.

Residues remaining in immediate foregrounds from thinning or harvesting activities will be most visually acceptable when:

1. They are less than 1 to 2 feet off the ground, or flat on it.
2. They are screened by shrubs, grasses, or other understory vegetation.
3. They are sparsely distributed and in clumps.
4. There is a small number of large diameter dead material as opposed to lots of tangles of small limbs.

Acceptable fuel loadings in the immediate foreground are depicted by the following photos.

	PP	LP	MC-MH
Natural Fuels	1-PP-3 1-PP-4	1-LP-3	1-MC-3
Thinning Fuels	All thinning photos contain too much slash.		
Partial Cut	1-PP-4-PC	2-LP-3-PC	2-TF-4-RC 1-MC-4-PC
Clear Cut	2-LP-3-PC	2-LP-3-PC	1-MC-4-RC

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Fuel loadings in the middleground and background should generally be the same as the surrounding Management Area.

Recreation

New recreation developments and changes to existing developments will be designed to meet Visual Quality Objectives when viewed from travel routes and viewpoints of concern. The view one has of the development while within it need not meet VQO's. Parking facilities for recreation activities should normally be established out of view from major travel routes. Exceptions can be made for special situations, such as parking areas for dispersed winter sports activities.

Occasional ORV use is permitted. When this activity begins to adversely impact the visual qualities of these areas, restrictions will be imposed on ORV activities. These restrictions may include prohibition on types of equipment used, seasonal closures, or total closures.

Over-the-snow vehicles will be allowed when the depth of continuous snowcover is adequate to protect other resources from adverse impact. Some trails or areas may be designated for nonmotorized winter activities such as cross country skiing to the exclusion of over the snow vehicle use.

Scenic Views Management Areas will provide the recreation setting and experience opportunities of the Recreation Opportunity Spectrum category of Roaded-Natural. This Roaded-Natural category is considered a modified category to account for visual standards of the Scenic Views Management Area. (See Appendix 2 for an explanation of the categories.)

Integrated Pest Management

Prevention

Monitoring and vegetative management will emphasize prevention of damage by pests.

Suppression

Take immediate action utilizing methods which reduce damage and provide for the long-term protection of visual quality.

MANAGEMENT AREA 10 (Bend Municipal Watershed)

Goal

To provide water at a level of quantity and quality which will, with adequate treatment, result in a satisfactory and safe domestic water supply.

Prescription

Timber

Timber may be harvested (1) in the event of a catastrophe, (2) to reduce fuels, and (3) to create vigorous stands which contribute to the overall health and stability of the watershed. Timber harvesting will be on an nonchargeable basis.

In the event of a catastrophe (i.e., insect epidemic or fire) timber will be harvested in a manner which will protect water quality and allow for rapid reforestation.

Except in the case of a catastrophe, no more than 15 percent of the area within the Bend Municipal Watershed will be in managed stands with ages less than 20 years.

Implications to the following items will be considered when developing proposals for timber management activities: (1) increases in annual flow, (2) increases in peak flow, (3) changes in water yield timing, (4) channel stability, and (5) impacts to the soil and water resources.

Transportation

Helispots will be strategically located and constructed to provide rapid access in the event of fire.

Existing trails and any new trails which are needed will be located, designed, and constructed in a manner which protects water quality.

If roads are constructed, they will be located, designed, and maintained to protect water quality and will be closed to the public.

When timber is to be harvested, specialized logging equipment which results in a minimum of ground disturbance will be used.

Transmission corridors may be allowed in this area. Construction, maintenance, and access will be strictly controlled in order to protect water quality.

Range

No grazing by domestic livestock will be allowed.

Fire Management

Wildfire

Protection of the municipal watershed will be a high priority. Fires within, or which threaten, the watershed will be aggressively controlled and mopped up. Appropriate suppression action must do less watershed damage than the potential wildfire.

On small or low intensity fires, utilize existing fire barriers and appropriately constructed and rehabilitated hand firelines.

On high intensity fires following an escaped fire situation analysis, heavy equipment to construct firelines and reduce potential acres burned may be used if it results in less total impact on the watershed. A resource advisor should be appointed in all such situations to approve the location and standard of equipment work.

Only approved retardants will be used in the watershed. The City Water Department will be notified immediately of any planned use of retardant in the watershed.

Maximum low intensity burn acre objectives are 100 acres/year and 10 acres per occurrence.

Maximum high intensity burn acre objectives are 10 acres/year and 10 acres per occurrence.

Prescribed Fire

An aggressive low intensity prescribed fire program will be necessary in portions of the watershed to treat the natural fuels accumulation. Prescribed burning with the objective of preventing the occurrence of large high intensity fires is permitted when soil and water quality objectives can be met. Individual fires should not exceed 20 acres. No more than 100 acres should be burned in a year.

Fuels Treatment Other Than Prescribed Fire

The Bend Municipal Watershed will be given high priority for fuel treatment to keep fuel loadings at levels which will minimize the risk of catastrophic fires. Presuppression facilities such as helispots should be planned and constructed in a manner compatible with soil and water quality objectives.

Fuel Loadings

Silvicultural entries should reduce the fuel loadings so that no less than 60 percent of the ground area is covered by duff, litter, residue, or vegetation. Optimum fuel loadings, exemplified by the following photo series, should be used.

	PP	LP	MC
Natural fuels	8-PP-4	1-LP-3	2-PP&A-4
Thinning	1-MC-3-PC	1-MC-3-PC	1-MC-3-PC
Partial Cut	2-PP-4-PC	2-LP-3-PC	3-TF-4-RC
Clearcut	1-LP-3-CC	1-LP-3-CC	2-MC-4-RC

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Watershed Management

Where feasible, channels with poor stability characteristics will be treated either structurally or vegetatively in order to stabilize them and enhance water quality.

Debris jams will be removed where this will prevent loss of bank or channel stability.

Recreation

Nonmotorized, dispersed recreation is permitted. Developed recreation facilities will not be constructed. Over-the-snow vehicles will be permitted on designated routes and areas when the depth of continuous snowcover is adequate to protect other resources from adverse impact of this activity.

The Bend Watershed Management Area will be generally managed to the Recreation Opportunity Spectrum standard of Semiprimitive Nonmotorized. Semiprimitive Motorized standards can apply to areas where seasonal motorized use routes may be located. (See Appendix 2 for an explanation of the categories.)

Visual Quality

Management activities will either be subordinate to the surrounding landscape or not visually evident. If necessary, visual objectives may be modified in order to meet water quality goals.

Wildlife

Planned activities associated with human disturbance will be restricted between April 1 and July 31 in the upper portions of the watershed. Fuel or silvicultural treatments should consider improving overall plant community diversity. Natural meadows and openings will be protected with few ground disturbing activities permitted.

Integrated Pest Management

Prevention

The emphasis will be to minimize conditions which are conducive to disease or insect attack. Pest management will be incorporated into silvicultural fuel treatment prescriptions. Emphasis will also be placed on preventing insects or disease movement into this Management Area from adjacent lands.

Suppression

In the event of increased insect or disease occurrence within this Management Area, high priority will be given to treating the affected stands.

MANAGEMENT AREA 11 (Intensive Recreation)

Goal

To provide a full range of quality outdoor recreation opportunities within a forest environment that can be modified for visitor use and satisfaction or to accommodate large numbers of visitors.

Prescription

Recreation

Campgrounds where a fee is charged will be managed at Full Service Level (FSL) of cleaning and maintenance. Nonfee campgrounds will receive Reduced Service Level (RSL) or a minimum standard of cleaning and maintenance. Day use sites, other than those associated with fee campgrounds, will be managed at RSL.

Additional campground capacity will be constructed to meet projected demand. The objective will be to keep occupancy rates, when measured on a Forestwide basis, at approximately the current level of 40 to 45 percent. This will involve expanding some existing sites and adding some new sites. In addition, there will be a continued emphasis on rehabilitation and heavy maintenance of existing sites.

The private sector will be encouraged to participate in campground construction and operation whenever possible. This includes the construction and operation of new campgrounds, as well as the operation of some existing campgrounds. Existing resorts operating under special-use permits will also be encouraged to provide a share of the new camping facilities where possible.

The number of resorts on the Forest providing overnight accommodations will not increase. The quality of facilities will improve through increased efforts at permit compliance. All new facilities will be compatible with a forest environment. The experiences provided will also be compatible with ROS classifications of the area. Operations in the winter season will be encouraged, as well as the summer, to meet the needs of winter recreation.

Day use facilities such as boat ramps, picnic areas, and interpretive sites will also be increased or expanded to meet a projected increase in the number of forest visitors. The type of day use facilities will also change over time to reflect the changing recreation need of the public.

Mt. Bachelor Ski Area will continue to expand to its approved capacity of approximately 21,900 people at one time. In reaching this capacity, the following principals will be maintained:

- No public overnight accommodations on the mountain.
- A balance between lift, lodge, run, and parking capacity will be maintained.
- Parking capacity will be tied to the highway capacity.
- Water use from Todd Creek should result in no modifications of the water level in Todd Lake and no significant depletin of water needed by the riparian plants along Todd Creek.
- Use of mass transit will increase.
- Travel time between Bend and the mountain will not exceed 1 hour more than 20 times a season.
- The mountain will be a center for both alpine and nordic skiing.
- Skier densities will be no more than 4-8 skiers/acre in order to maintain the uncrowded feeling the area is known for.

The experience provided will be compatible with a ROS category of Rural. (See Appendix 2.) Specifically this will include a diversity of winter recreation activities that emphasize the Forest setting and provide an introduction to the more rustic natural resource-based recreation opportunities.

Year-round recreation activities will be encouraged. Summer facilities that are compatible with or enhance natural resource-based facilities will be permitted.

No additional downhill ski areas will be built on the Forest until Mt. Bachelor is near the planned capacity. Additional nordic areas, however, may be developed elsewhere on the Forest as the need develops.

Skyliner Lodge has the potential to serve as a hub for both summer and winter dispersed recreation. The Lodge should be developed for group use with limited overnight accommodations. Any development of the Lodge must consider its historic value and integrity. Water and sanitation facilities need to be developed before the lodge can be effectively used. Other facilities could be developed on the site to supplement the Lodge.

Paulina Peak is planned as an interpretive site. Some or all of the existing buildings will be removed. Parking will be expanded and toilet facilities will be added. Interpretive signing will also be added. An electronic site is not compatible with this use and will not be permitted.

Good road access (paved or surfaced) for standard passenger and RV-type vehicles will be provided to areas within this Management Area and to major developments or attraction areas within them.

Motorized-mechanized vehicles will be restricted to designated routes or areas. Restrictions on use of over the snow vehicles will be determined on a case-by-case basis. In those areas where they are permitted, over the snow vehicles will be allowed when the depth of continuous snowcover is adequate to protect other resources.

Public services such as stores, resorts, and guided activities provided by private enterprise may be needed. The number, type, and extent of development will be determined by the recreation capacity of the Management Area and individual local areas being served.

Facility complexes will be constructed and maintained to Development Levels 3 through 5. (See Appendix 3 for an explanation of the levels.) Complementary developments at Levels 1 and 2 can be provided in minor numbers and proportion of capacity if essential to best utilize the recreation experience available within the area.

This Management Area will generally provide recreation setting, activity, and experience opportunities for the Recreation Opportunity Spectrum category of Roaded Natural or Rural. (See Appendix 2 for an explanation of the categories.)

Those lengths of the Metolius and Deschutes Rivers on National Forest land which are recommended for classification under the Wild and Scenic Rivers Act will receive special consideration and protection in all management activities. Those values that make these river lengths suitable and eligible for classification will be maintained and preserved. This includes prohibition of any activity that would alter their inventoried, free flowing condition or their recommended category of classification.

The Deschutes River will continue to be managed in accordance with the Deschutes River Plan approved July 30, 1982. This Plan limits commercial rafting to the section of the River between Aspen Camp and Lava Island. The number of commercial rafts is also limited to 12 rafts per hour.

Vegetation

Objectives for vegetation management are to meet recreational objectives of the Management Area. They are to:

1. Prepare vegetation management plans to guide the harvesting of timber if needed to meet recreation needs.
2. Maintain vegetative and age class diversity, stand vigor, and overall stand condition for recreation purposes.
3. Reduce risk of public injury from hazardous trees and vegetation.
4. Maintain or improve visual quality of scenery associated with the recreational experience of the area.
5. Salvage and prevent catastrophic destruction of the vegetative cover (insects, disease, fire, wind).
6. Disposal of material that is a result of vegetation management activities must be disposed of prior to the beginning of the next recreation season. Some slash may be left for firewood for recreation use.
7. Design fuel cleanup to maintain or enhance visual and recreation values and to minimize the chance of a fire destroying the resource.
8. The objective for ponderosa pine is to emphasize retaining or creating the overall character of yellowbark pines in open stands, along with a variety of other age classes.

a. Rotation ages should be approximately 300 years.

b. Stands may need to be thinned to acquire the desired vegetation conditions.

c. Stocking levels should be determined on a site-specific basis and silvicultural prescriptions should be prepared according to the Timber Management Standards and Guidelines and recreation objectives for these areas.

9. The objective for managing lodgepole pine is to increase species and size class diversity and to keep trees in a healthy condition while keeping the visual disturbance at a minimum.

   a. The mountain pine beetle epidemic in some mature lodgepole pine has been defined as a catastrophe. The mature infested and susceptible stands are to be converted to younger stands in 20 years. Visual quality and recreational experiences associated with intensive recreation will be impacted for the next 20 years. In the long term, lodgepole is to be managed according to the following prescriptions.

   b. Rotation age should be approximately 110 years.

   c. Stands may need to be thinned to acquire the desired vegetative condition.

   d. Stocking levels should be determined on a site-specific basis and silvicultural prescriptions should be prepared according to the Timber Management Standards and Guidelines and recreation objectives for the area.

10. The objective for managing mixed conifer is to retain a variety of species, snags, and size classes.

   a. Rotation age should be approximately 160 years. Emphasis will be on long-lived species.

   b. Stands may need to be thinned to acquire the desired vegetative condition.

   c. Regeneration cut should normally be a shelterwood.

   d. Stocking levels should be determined on a site-specific basis and silvicultural prescriptions prepared to meet the recreation management objectives for the area.

11. Fuelwood gathering will normally be limited to cleaning up residual wood materials resulting from management activities. Wood will be available first for use in public recreation facilities. On a case-by-case basis, commercial firewood cutters may be used where time and performance can be controlled to accomplish specific recreation objectives.

Range

Grazing allotments included in this Management Area will exclude livestock use from developed sites. Small pasture allotments for individually owned recreation stock will not be allowed in this Management Area except where use predates this allocation and the use is compatible. Range allotment management plans will specify practices which will meet the objectives of this Management Area.

Visual

Within existing or future developed areas, management activities may dominate the landscape. However, the natural environment will be emphasized in appearance, theme of design, and maintenance of developments. Areas outside of developed areas will be managed so they are natural-appearing. Intensive Recreation Management Areas viewed as being in the middleground and background from important viewpoints will appear predominately natural.

Transportation

A wide spectrum of transportation facilities from high standard, double- lane roads to Forest local roads and trails can be constructed as needed.

Fire Management

Wildfire

All wildfires should be aggressively controlled by using low impact methods as much as practicable. Firelines constructed by hand will be favored over firelines constructed by heavy equipment except where high intensity fire situations may exist.

Maximum low intensity burn acre objectives for each area are 10 acres/year and 1 acre per occurrence.

Maximum high intensity burn acre objectives for each area are 5 acres/year and 1 acre per occurrence.

Prescribed Fire

Prescribed fire may be used to reduce hazardous fuel concentrations and to form fuelbreaks adjacent to the high use, high fire occurrence areas such as the Lower Metolius, Upper Metolius, Twin Lakes, Pringle Falls, and Deschutes River. Prescribed burning can be done to enhance the recreation experience. Burning will be planned to have the minimum impact on recreation use or appearance of the area.

Fuel Treatment Options Other Than Prescribed Fire

Treatment methods that will not be visible over a long period of time should be emphasized. Treatment should occur outside the normal recreation season.

Fuel Loadings

Fuel loadings will normally vary. Areas within sight of campgrounds and other high-use areas should have almost 100 percent cleanup of activity fuels. Maintenance of natural fuels for appearance and leaving activity fuels for firewood is acceptable. Those areas further away from the high-use areas may receive treatment similar to General Forest. The following photos represent some acceptable situations adjacent to high-use areas.

	PP	LP	MC-MH
Natural Fuels	1-PP-2 1-PP-4	1-LP-2	1-MC-3
Thinning — All thinning photos contain too much slash.			
Partial Cut	1-PP-4-PC	2-LP-3-PC	1-DF-4-PC 1-MC-4-PC
Clear Cut	1-PP&A-4-PC	1-LP-3-PC	3-TF-4-RC

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Fuel will be treated quickly and to a level commensurate with the increased risk and protection of recreation values.

Wildlife

Emphasis will be on habitat improvement for watchable wildlife and maintaining or improving fish habitat. If significant changes in recreation use are planned because of changes in facilities or access, they will be coordinated with the Oregon Department of Fish and Wildlife.

Should an osprey or Bald Eagle establish a nest in, or immediately adjacent to, an established recreation facility (campground, resort, etc.) no special precautions will be necessary since suitable habitat is available in other Management Areas.

Integrated Pest Management

Prevention

Monitoring and vegetation management will emphasize prevention of damage by pests.

Suppression

Take aggressive action utilizing techniques which protect the resources and forest users. Favor biological and silvicultural techniques over pesticides when possible.

MANAGEMENT AREA 12 (Undeveloped Recreation)

Goal

To provide a range of quality recreation opportunities in an undeveloped forest environment.

Prescription

Recreation

Facilities

Any sites where facilities are installed will be managed at Development Level 1. (See Appendix 3.)

Primitive facilities may be installed to protect resources, provide for user safety, and distribute use to meet Management Area goals.

Facilities will be constructed of native materials whenever possible.

Recreation facilities will be limited to primitive toilets, shelters, campfire rings, and recreation stock control devices. Signing for informational, directional, and safety purposes will be kept to a minimum.

ROS Category

The recreation setting, activity, and experience opportunities for the Recreation Opportunity Spectrum category of Semiprimitive Nonmotorized and Nonmotorized will be provided. (See Appendix 2 for an explanation of the categories.)

Vehicle Use

Use of motorized vehicles will be restricted to designated roads and trails. Over-the-snow vehicles will be allowed when the depth of continuous snowcover is adequate to protect other resources from adverse impacts except on the Pacific Crest Trail which is closed to motorized use. Refer to the Off-Road Vehicle map.

Trails

The summer trail system for horses and hikers will be maintained at the current level. Missing sections will be constructed and substandard sections will be reconstructed. A mountain bicycle trail system will be developed.

Timber

There will be no scheduled timber harvest. Timber harvesting will be allowed in catastrophic situations such as fire or insect salvage and to prevent the spread of insects and disease to areas managed for other purposes or to meet the management area objectives. Restoration of such an area will be designed to return it to a natural state.

Fuelwood gathering will be designed to take advantage of available fuel while providing for safe and aesthetically pleasing undeveloped recreation experiences. Opportunities will be limited to existing or designed access ways. New access for fuelwood gathering will be carefully designed, will meet recreation resource needs, and will normally be done only to salvage or prevent catastrophic losses of timber.

Range

Outfitter guides using recreation stock will be allowed permits. Grazing of domestic livestock will be permitted to utilize existing forage if the overall character of the area will remain unchanged. Structural range improvements such as fences and water will be allowed and will be constructed of native materials whenever possible.

Visual

Management activities will either be subordinate to the surrounding landscape or not visually evident.

Transportation

Trails and any roads will be designed, constructed, and maintained to the minimum standard needed to achieve objectives and goals of this Management Area. A limited number of helispots may be constructed where natural openings are unavailable.

Low-density primitive roads will provide access for standard and four-wheel drive vehicles.

Fire Management

Wildfire

Generally, containment, control, and confinement are all acceptable suppression tactics, depending on existing and forecasted weather conditions. Normally, low impact suppression methods and natural barriers will be used. Heavy equipment should be avoided unless and "Escaped Fire Situation Analysis" indicates that the resource damage from equipment would be more than offset by reducing fire damage.

Maximum low intensity burn acre objectives are 1 percent per year of each area and 300 acres per occurrence.

Maximum high intensity burn acre objectives are .3 percent per year of each area and 100 acres per occurrence.

Prescribed Fire

Prescribed burning may be used to return the area to natural conditions.

Fuel Treatment Other Than Prescribed Fire

Not appropriate.

Fuel Loadings

Fuel loadings will consist of natural accumulations except as modified by prescribed burnings.

Special Uses

Permits will be allowed for structures if they existed prior to allocation of lands to this practice. New permits for small devices and structures may be allowed. Such structures must blend with the unmodified environment.

Large facilities and transmission corridors are not compatible with the objectives of this Management Area. (See the Standards and Guidelines for Special Uses.)

Wildlife

Fish stocking is permitted.

Integrated Pest Management

Prevention

Monitor pest populations so that early detection of threats to adjacent areas is possible.

If adjacent areas are threatened, suppression techniques favoring biological control should be used if available.

MANAGEMENT AREA 13 (Winter Recreation/ Geothermal)

Goal

To provide quality winter recreation opportunities within a forest environment that can be modified for visitor use and satisfaction in conjunction with development of geothermal resources.

Prescriptions

Recreation

The emphasis is to manage the area for dispersed winter-type recreational activities. Dispersed recreation use in the summer is compatible but not emphasized.

Cross-country skiing and over the snow vehicle trails are provided and located to minimize conflict and to keep hazards to a minimum. Parking lots, shelters, and visibly signed routes are necessary to support the recreational activity. This Management Area can be zoned to minimize conflicts between motorized winter activities and nonmotorized activities. Individual roads or trails can be designated for separate uses. Areas closed to motorized activities will be shown in the Off-Road Vehicle (ORV) Plan. Areas closed to motorized activity could change as use patterns change. The ORV Plan would be amended to show such changes.

ROS Category

The recreation setting activity and experience opportunities for the Recreation Opportunity Spectrum (ROS) category of Semiprimitive Nonmotorized, Semiprimitive Motorized, and Roaded Natural will be provided in the winter season (see Appendix 2 for an explanation of the categories). For summer recreation the ROS category of Roaded Modified may also be present.

Timber

Timber management will be designed to provide suitable conditions for winter recreation, however, timber will not be scheduled as part of the chargeable program. Rotation ages and silvicultural prescription can vary to meet recreation objectives. High intensity management will normally not be used. Clearcuts are acceptable to provide openings for snowplay areas or to open up vistas for visual purposes. Firewood cutting is permissible. Timber harvesting activities will normally be conducted outside of the winter recreation season. Timber harvesting is also permitted to address catastrophic situations such as fire or insect and disease damage but the primary objective even in these situations will be to improve winter recreation opportunities.

Range

Allotments established in this Management Area will be managed to provide for a forage condition rating of fair or better. Transitory range that results from vegetative manipulation can be used. Structures such as fences must be designed and located so they do not interfere with, or present a hazard to, winter recreation activities.

Visual

Visual quality will be considered in locating roads associated with geothermal and recreation activities. Created openings will be shaped and blended to the natural terrain. Vegetation will be managed to create a pleasing variety of views to enhance the winter recreation activity.

Transportation

Local and low standard roads needed to support the winter recreation activities and vegetation management will be located to serve as winter travel routes. Roads developed for geothermal exploration will be located to facilitate winter recreation activities and can be closed if no longer needed for geothermal exploration.

Fire Management

Wildfire

Suppression practices will be designed to prevent losses of large acreages to wildfire. Appropriate fire management practices may vary from confinement on a self-contained fire to full scale control on a high intensity fire. Snags that do not present a hazard to life or a threat to successful suppression activities should not be felled.

The maximum low intensity burn acre objectives in the Area are 1 percent per year. Fires should not exceed 10 acres per occurrence.

The maximum high intensity burn acre objective in the Area is .5 percent per year and 10 acres per occurrence.

Prescribed Fire

Prescribed fire may be used to remove concentrations of material that hinder winter recreation activities and to reduce the risk of conflagration fires.

Fuel Treatment Other Than Prescribed Fire

The lowest cost option which meets the recreation, soil, water, and fire objectives should be used.

Fuel Loadings

Slash will be treated to minimize chances of large wildfires but will not be cleared to the point that the forest floor is devoid of all slash and logs. Some slash and larger dead material will be left for ground cover for soil protection, microclimates for establishment of trees, and small mammal habitat.

Optimum fuel loadings should be guided by the following photo series.

	PP	LP	MC-MH
Thinning (PCT)	1-MC-3-PC 4-PP-1-TH	1-MC-3-PC 1-PP-1-TH	1-MC-3-PC 1-PP-1-TH
Partial Cut (SH, OR, CT)	4-TF-4-RC 2-LP-3-PC	2-LP-3-PC	2-MC-4-PC 2-TF-4-RC
Clearcut (CC)	2-MC-4-RC 1-LP-3-PC	1-LP-3-CC	3-TF-4-RC 2-MC-4-RC

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Integrated Pest Management

Prevention

Monitoring and vegetative management will emphasize prevention of damage or loss of resource production because of pests.

Suppression

Take immediate suppression action utilizing principles and techniques that reduce damage and losses and prevent future pest problems from occurring.

MANAGEMENT AREA 14 (Oregon Cascade Recreation Area)

Goal

To conserve, protect, and manage in a substantially undeveloped condition the unique values associated with the Oregon Cascade Recreation Area (OCRA).

Prescription

Recreation

Vehicle Use

Use of motorized vehicles will be restricted to designated roads and trails. Over-the-snow vehicles will be allowed when the depth of continuous snowcover is adequate to protect other resources from adverse impacts.

Facilities

Any sites with facilities will be managed to Development Level 1 or 2 standards with most sites at Development Level 1.

Primitive facilities may be provided to protect resources, provide for visitor safety, and distribute use throughout the area.

Facilities will be constructed of native materials whenever possible.

Recreation facilities will primarily be primitive toilets, shelters, recreation stock control devices and enclosures, trailheads, vehicle control devices, primitive campsites for motorized vehicles, and minimum directional and safety signing. Existing recreation developments will be maintained.

ROS Category

The recreation setting, activity, and experience opportunities for the Recreation Opportunity Spectrum Category of Semiprimitive Motorized will be provided.

Timber

There will be no scheduled timber harvest. Timber harvesting will be allowed in catastrophic situations such as fire or insect salvage to prevent the spread of insects and disease to areas managed for other purposes or to meet the management area objectives. Restoration of such an area will be designed to return it to a natural state. Timber harvesting can also be used to manipulate vegetation for wildlife habitat improvement or to enhance the recreation opportunity. It may also be used as a management tool to protect certain areas from the risk of fire.

Commercial or personal use fuelwood gathering will be permitted when needed to meet the recreation and wildlife objectives.

Range

Grazing of domestic livestock may be permitted if necessary to utilize excess forage not needed to meet wildlife objectives. Structural range improvements such as fences and water will be allowed and will be constructed of native materials whenever possible. Livestock will be managed to minimize conflicts with recreationists.

Visual

Management activities will either be subordinate to the surrounding landscape or not be visually evident. The visual resources can be enhanced by opening up vistas from roads and trails. Also, opening vistas into the area from lands adjacent to the OCRA should be considered.

Transportation

Trails and any roads will be designed, constructed, and maintained to the minimum standard needed to achieve objectives and goals of the Recreation Area. A limited number of helispots may be constructed where natural openings are unavailable.

Fire Management

Wildfire

Generally, containment, control, and confinement are all acceptable suppression tactics, depending on existing and forecasted weather conditions. Normally, low impact suppression methods and natural barriers will be used. Heavy equipment should be avoided unless an "Escaped Fire Situation Analysis" indicates that the resource damage from equipment would be more than offset by reducing fire damage.

Maximum low intensity burn acre objectives are 1 percent per year of each area and 300 acres per occurrence.

Maximum high intensity burn acre objectives are .3 percent per year of each area and 100 acres per occurrence.

Prescribed Fire

Prescribed burning may be used to meet the recreation and wildlife objectives.

Fuel Treatment Other Than Prescribed Fire

Not appropriate.

Fuel Loadings

Fuel loadings will consist of natural accumulations except as modified by prescribed burnings.

Special Uses

New permits for small devices and structures may be allowed where necessary for resource protection and management or visitor safety and comfort.

Transmission corridors are not compatible with the objectives of the OCRA and normally will not be permitted unless there is no feasible alternative location.

Wildlife

Wildlife habitat improvement should be designed to enhance the recreation experience. Creating small openings, use of salt, blinds, or interpretive trails are acceptable. Fish stocking and fish habitat improvement are permissible.

Integrated Pest Management

Prevention

Monitor pest populations so that threats to adjacent areas can be detected early.

If adjacent areas are threatened, suppression techniques favoring biological control should be used if available.

Developed Recreation

Facilities at development level 3 and 4 are appropriate for sites where high use is compatible and desirable.

Wilderness

That area in the OCRA classified as Wilderness will be managed in accordance with the Wilderness Act and Wilderness Management Plans.

Minerals and Geothermal

The area will be withdrawn from entry or leasing on January 1, 1989.

Coordination

The OCRA will be managed as a single unit. Coordination meetings will be periodically scheduled between Forests and Ranger Districts to review management of the area.

MANAGEMENT AREA 15 (Old Growth)

Goal

To provide old-growth tree stands for (1) preservation of natural genetic pools, (2) habitat for plants and wildlife species associated with overmature tree stands, and (3) contributions to the diversity spectrum.

Prescription

Timber

The timber resource is managed to retain the old-growth characteristics and prolong the life of the stand. There is no timber harvest schedule; however, timber may be harvested to meet old-growth objectives. Silviculture for ponderosa pine, mixed conifer, and mountain hemlock will ordinarily be small-group selection. Single-tree selection may not be excluded. If planting is necessary, it will be with stock developed from the stand in which it is to be planted.

Lodgepole pine could be managed using group selection to attain a mosaic of stands in a variety of age classes, emphasizing overmature trees. The intent is to have stands that will replace overmature stands as they are lost to natural causes.

Firewood cutting is permitted in the lodgepole pine old growth when the amount of dead material exceeds the old-growth objectives. This could be accomplished by a well designed, closely controlled commercial permit. Firewood cutting in other plant communities will normally not be permitted.

Wildlife

Emphasis on habitat conditions will be to provide: (1) large trees, (2) standing and downed dead trees, and (3) in appropriate plant communities, vertical structures within the stands. Closed canopies (greater than 40 percent) will be maintained on sites which have the capability. Standing and downed dead trees should be protected during prescribed burning in ponderosa pine communities.

Recreation

Developed recreation, such as campgrounds and resorts, is not compatible in this Management Area. Off-road (except snowmobiles) vehicles are not permitted. Snowmobiles may be allowed when the depth of continuous snowcover is adequate to protect other resources from adverse impact of this activity.

These Management Areas generally provide the recreation opportunities of the Recreation Opportunity Spectrum category of the major adjacent Management Area. The appropriate category will be limited to either Semiprimitive Nonmotorized, Semiprimitive Motorized, or Roaded-Natural. (See Appendix 2 for an explanation of the categories.)

Range

Livestock grazing is permitted at levels which maintain the desired composition associated with old growth. Forage utilization will be limited to that not needed to maintain indigenous plant and animal species. Exotic plants cannot be introduced.

Salt blocks or water developments will be allowed if livestock use does not change the plant composition.

Fire Management

Wildfire

In mountain hemlock, mixed conifer, and lodgepole pine, aggressive suppression which uses a minimum of heavy equipment wherever possible, will be emphasized.

In ponderosa pine stands, when existing and predicted burning conditions favor low intensity fires, containment suppression tactics will be appropriate. This may include burning out from existing barriers and scratch lines.

High intensity fires will be suppressed.

The maximum annual low intensity burn acre objectives are .5 percent of the total acreage for each area of the following species: mountain hemlock, mixed conifer, and lodgepole pine, and 10 acres per occurrence. The maximum annual low intensity burn acre objectives for ponderosa pine are 4 percent of the total acreage of each area and 300 acres per occurrence.

The maximum annual high intensity burn acre objectives for all species are .5 percent of the total acreage of each area and 10 acres per occurrence.

Prescribed Fire

Prescribed fire is not appropriate except in ponderosa pine stands. There it may be used to maintain species and abundance of plants which would occur with fire as part of the ecosystem. It may also be used to reduce fuel loadings to prevent high intensity wildfires. Large downed logs and standing dead trees should be protected.

Fuel Treatment Other Than Prescribed Fire

Utilize low impact fuel treatment operations in conjunction with any silvicultural entries.

Fuel Loadings

Natural fuel loading will normally be the standard in mixed conifer, mountain hemlock, and lodgepole pine. Reductions in fuel loading can occur if activity fuels are created or natural fuels build to a point that a catastrophic fire is likely. Fuel reductions should leave adequate downed material to meet the criteria for old growth.

Optimum fuel loadings should be used as a guide to fuel loading standards as defined by the following photo series.

	PP	LP	MC-MH
Thinning	1-MC-3-PC 4-PP-1-TH	1-MC-3-PC 1-PP-1-TH	1 MC-3-PC 1-PP-1-TH
Partial Cut	4-TF-4-RC 2-LP-3-PC	2-LP-3-PC	2-MC-4-PC 2-TF-4-RC
Clearcut	2-MC-4-RC 1-LP-3-PC	1-LP-3-CC	3-TF-4-RC 2-MC-4-RC

These are found in "Photo Series for Quantifying Forest Residues," a cooperative publication by the Pacific Northwest Forest and Range Experiment Station, U.S. Department of Agriculture, Forest Service, Portland, Oregon.

Transportation

Road and trail construction and access will be limited. New high-standard roads will not be permitted; minimum-standard, intermittent-use roads, or temporary roads are permitted. Road densities will be kept to a minimum. Helispots and transmission corridors should be located outside of these Management Areas.

Visual

The management strategy for ponderosa pine, mixed conifer, and mountain hemlock will not significantly impact the visual quality objectives, as inventoried. Cutting units in lodgepole pine will be arranged and shaped to mitigate visual impacts.

Integrated Pest Management

Prevention

Monitor pests normally associated with old-growth ecosystems to prevent total loss or unacceptable damage to adjacent areas.

Suppression

Utilize sound pest management principles while recognizing that some level of pest activity is associated with old-growth ecosystems. Retain as much of the old-growth character as possible during suppression.

MANAGEMENT AREA 16 (Experimental Forest)

Goal

To provide an area where field research activities are conducted while considering other resource values.

Prescription

Timber

Timber is managed on an unregulated basis to meet research objectives.

Visual

Inventoried visual quality objectives should be met in the foreground areas along the Deschutes River and Forest Roads 43, 44, and 4410.

Meeting inventoried visual quality objectives should be a goal on the portion of Lookout Mountain seen from Crane Prairie.

Recreation

1. The area along Deschutes River between Roads 44 and 4370 will provide opportunities for onsite recreation research and provide the following types of recreation: dispersed area camping, developed site camping, fishing and hunting, boating (primarily canoe and low horsepower), floating (rafting), interpretation of environment and Experimental Forest activity, and hiking.

   a. The area will be managed so as not to exceed area PAOT capacity determined by site capability and desired recreation experience.

   b. Developed sites will be maintained and managed at Development Levels 2 and 3 (mostly Level 2). (See Appendix 3 for a description of the Levels.) Level 3 will apply to the more heavily used and consistently attractive areas.

   c. The current administrative site will be managed to exclude recreation use and provide support and administrative facilities for the Experimental Forest.

   d. Areas of concentrated or dispersed camping use will be managed to prevent or rehabilitate site degradation and damage. When excessive site damage is occurring, management action will be implemented to correct this condition.

   e. ORV use is allowed (primarily for dispersed area camping access). When such use causes intolerable deterioration or degradation, action will be implemented to correct this condition.

   f. The area will be managed to assure a Recreation Opportunity Spectrum experience of Roaded-Natural.

2. The remainder of the Experimental Forest will be managed to provide recreation opportunities appropriate and commensurate with Forest Research:

   a. The following activities will be emphasized:

      (1) Casual observation and interpretation of Experimental Forest activities.

      (2) Environmental education.

      (3) Hunting.

   b. ORV activity will be prohibited, except for over-the-snow vehicle use which can continue as long as it does not adversely impact a resource. Over-the-snow vehicles can be excluded from specific areas to prevent interference or damage to research projects in progress. This will normally be accomplished by signing and posting these areas.

Wildlife

Threatened and Endangered Species

Should a species listed as threatened or endangered be encountered, the following process will apply:

1. Determine if the area is essential habitat for the species (nesting habitat, winter roosts) or if species' use of the area is incidental.

2. Protect essential habitat from adverse modification through curtailment of conflicting activities, modification of activities, seasonal restriction of activities, or avoiding the area. Should this result in a possible conflict with established research activities, initiate consultations in accordance with existing regulations.

Raptors

Where possible, research activities will protect active nests of raptors (species other than T&E) such as goshawks, redtailed hawks, owls, and golden eagles during the nesting season (March 1 to August 31) by establishing a zone around the nest and restricting activities within that zone. The zone could range up to ¼ mile depending on the species and conditions at the site.

Cavity Nesters

Some snags will be left to provide habitat for cavity nesting species. The recommended density of snags will be 1.35 snags per acre in ponderosa pine and mixed conifer and 1.08 in lodgepole pine. Sufficient live, green replacement trees must be left during any final harvest to assure adequate snags through the rotation. Snags should be uniformly distributed insofar as practicable.

Downed Logs

Two dead and downed logs per acre are recommended to be left after research activities are completed. Such trees or logs should be greater than 12 inches in diameter on the large end and a minimum of 20 feet long.

Watershed

Attempts to control bank erosion using natural vegetation on the Deschutes River can be implemented within this Management Area.

Threatened and Endangered Plants

Use the same procedure for threatened and endangered wildlife.

Fire

Wildfire

Suppression should be aggressive and aimed at minimizing acres burned and trees damaged. Suppression should emphasize low impact methods such as handline, use of water, and helitack wherever the methods can meet the acreage constraints. Because they are fertilizers, retardants may adversely affect research plots and are normally discouraged; however, in extreme fire situations their use may be appropriate.

The Pacific Northwest Silviculture Lab in Bend should be notified of a fire immediately after the initial dispatch so they can be available to assist, monitor, and advise on suppression practices.

Maximum low intensity burn acre objectives are 1 acre/year and 1 acre per occurrence.

Maximum high intensity burn acre objectives are 1 acre/year and 1 acre per occurrence.

Prescribed Fire

Prescribed fire will be used only in conjunction with approved research projects. Initial projects should be located along the perimeter of Experimental Forest as a means of protection from external fires.

Fuel Treatment Other Then Prescribed Fire

Fuel treatment methods other than prescribed fire will be dictated by the needs of the individual research project.

Fuel Loadings

Fuel loadings will be dependent on the research project.

CHAPTER 5

IMPLEMENTATION OF THE FOREST PLAN

Introduction

Implementation of the Deschutes National Forest Plan requires moving from an existing management program, with a budget and "targets" for accomplishment, to a new management program with a budget, goals, and objectives that provide a different way of addressing the issues and concerns people have voiced about Forest Management. This Forest Plan establishes the direction for the Deschutes National Forest for the next 10 to 15 years, when used in conjunction with Forest Service Manuals and Handbooks and the Pacific Northwest Regional Guide.

The following sections describe aspects of implementation that are influenced by previous management activities and objectives, the relationship between project planning and the Forest Plan, and the goals and requirements of monitoring and evaluation. It also discusses the circumstances which could require the Plan to be amended or revised.

Implementation Direction

Project Scheduling

Projects necessary to accomplish the goals and objectives are scheduled through a process which takes Forest-wide outputs and activities and locates them to more site-specific areas on the Ranger Districts. The framework for this is the Implementation Unit which is a sub-unit of the Districts. For timber-related outputs and activities, the FORPLAN solution by analysis area and management area is interpreted for each Implementation Unit. Within each Implementation Unit, the approximate location of harvesting and treatments is identified for the first decade. In some instances the solution from the FORPLAN model may not be feasible since outputs were based on averages and the model did not contain information regarding past administrative decisions or actions that could occur in any single Unit. Such things as areas with sales under contract that have been granted extensions and have not been cut could affect how much more could be planned in the immediate future.

The schedule for projects associated with wildlife habitat improvement, range improvement, recreation development, etc., will be done in a similar manner to ensure that the integration and standards and guidelines are complied with.

When the Final Forest Plan is complete, the project scheduling will be finalized and will be available for review at the Ranger District Offices and the Supervisor's Office.

Consistency with Other Instruments

Subject to valid existing rights, all outstanding and future permits, contracts, cooperative agreements, and other instruments for occupancy and use of lands included in the Forest Plan will be consistent with the direction established in the Forest Plan. Adjustments of existing instruments will be accomplished by the year 1990.

A Plan developed for the Deschutes River from Wickiup Reservoir to the Forest boundary was reviewed and found to be in compliance with the Proposed Forest Plan. An Environmental Assessment was done on the Plan. The document is available at the Supervisor's Office, USDA Forest Service, Bend, Oregon for inspection.

Budget Proposals

The schedule of activities and outputs discussed in Chapter 4 are translated into multi-year program budget proposals. This is then used to request and allocate funds. Upon completion of a final budget, the annual program of work is finalized and carried out. Accomplishment of the annual program of work is the incremental implementation of the management direction of the Forest Plan.

Environmental Analysis

As projects and activities are designed consistent with the Forest Plan, they are subject to compliance with the NEPA process. If the environmental analysis for a project shows that: (1) the management area prescriptions and standards and guidelines can be complied with and (2) few or no environmental effects are expected beyond those identified and documented in the Forest Plan EIS, the analysis could result in a categorial exclusion. The need for public input will be scoped during the environmental analysis process. An analysis file will also be available for review, but it will not always be in the form of an environmental assessment or EIS.

Compliance with the NEPA process may, on the other hand, require an Environmental Assessment or an Environmental Impact Statement.

Monitoring and Evaluation Program

Monitoring

Table 5-1 shows the monitoring program for those items which are the most significant on the Forest.

Amendment and Revision

The Forest Supervisor may amend the Forest Plan. Based on the monitoring and evaluation and an analysis of the objectives, standards, and other contents of the Forest Plan, the Forest Supervisor will determine if an amendment is necessary and if so if the proposed amendment would result in a significant change in the Plan. If the change resulting from the proposed amendment is determined to be significant, the Forest Supervisor shall follow the same procedures as that required for development and approval of a Forest Plan. If the change resulting from the amendment is determined not to be significant for the purpose of the planning process, the Forest Supervisor may implement the amendment following appropriate public notification and satisfactory completion of the NEPA procedures. All amendments will be incorporated into this section at least annually.

The Forest Supervisor will review the conditions of the land covered by the Plan 5 years after it is implemented to determine whether conditions or demands of the public have changed significantly. If so the Plan could be revised. The Plan ordinarily is revised 10 years after it is implemented but would be revised no later than 2001. It can also be revised when the Forest Supervisor determines that changes in RPA policies, goals, and objectives would have a significant effect on Forest level programs. In the monitoring and evaluation process, the Interdisciplinary Team may recommend a revision of the Forest Plan at any time. Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of the Forest Plan.

Evaluation

Information collected during monitoring will be evaluated at the end of the first 5 years of plan implementation to determine how effectively the Plan is being implemented. Evaluations in some areas could be done earlier than this, if the monitoring program indicates a significant change is occurring or outputs are predicted to be significantly above or below those estimates used in the planning process.

Table 5-1 Monitoring Program Guidelines

Mgmt. Area	Activity, Practice or Effect to be Monitored	Program Element(s)	Activity Code(s)	Frequency of Measure	Accuracy	Technique or Data Source	Evaluation Reporting Period	Responsibility	Bounds Beyond Which Further Evaluation is Needed
GF, DH, SV	Acres cut by silvicultural treatment by District -PP, LP, MC, MH	E	E03	Annual	2%	Timber inventory adjustment (TMIA) Timber mgt. stand attribute (TMSA)	Annual	S.O. R.D.	10% deviation from pred. flow
GF, DH, SV E,O,O	Acres cut by District -PP, LP, MC, MH	E	E03	Annual	2%	TMSA	Annual	S.O. R.D.	10% deviation from pred.
GF, DH, SV and E,O,O	Adequate restocking of regenerated lands within 5 years	E	E03	Annual	2%	GIS	Annual	R.D.	
GF, DH, SV	Volume cut by District by silvicultural treatment -PP, LP, MC, MH	E	E07	Annual	2%	Report 25A	Annual	R.D.	
GF, DH, SV and E,O,O	Acres of pre-commercial thinning/acres of over-wood removal	E	E03 E05	Annual	2%	TMSA	Annual	S.O. R.D.	
GF, DH SV	Cost per MMBF or cost per acre by District for:	E	Annual	5%	B&F	Annual	B&F financial reviews		
	1. Presale		E06						
	2. Sale Admin.		E07						
	3. Site Prep./ Planting		E04						
	4. Precomm. thinning		E05						
GF, DH, SV, and E,O,O	Volume per acre and stocking level	E	E03	Annual	5%	Stand exams	Annual	R.D. S.O.	

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[1] Management Information Handbook Codes
GF = General Forest
DH = Deer Habitat
SV = Scenic Views
E, O, O = Bald Eagle, Spotted Owl, and Osprey

Table 5-1 Monitoring Program Guidelines

Mgmt. Area	Activity, Practice or Effect to be Monitored	Program Element(s)	Activity Code(s)	Frequency of Measure	Accuracy	Technique or Data Source	Evaluation Reporting Period	Responsibility	Bounds Beyond Which Further Evaluation is Needed
N.A.	Firewood consumption and supply	E E07	E06	Annual	Mod.	Permits & field reconnaissance	5 years	R.D. S.O.	
All Mgmt. Areas	Changes in water quality due to management activities	F	F09	Seasonal/ Annual	Mod.	Sample collection, analysis, interp.	Annual	R.D. S.O.	
All Mgmt. Areas	Changes in soil productivity	K	F09	Annually	Mod.	Physical Measure	Annual	S.O.	
All but scenic views	Effect of Mgmt. activities on visual quality	A	A14	Annual	Mod	Photo	Annual	S.O.	
All Mgmt. Areas	Effects of Mgmt. activities on floodplains and riparian zones	N.A.	N.A.	Every 5 years	Mod.	Transects	5 Years	S.O.	
All Mgmt. Areas	Extent and severity of insect and disease occurrence	P	P34	Annual	Mod. Low	Flights, ground investigation	Annual	R.O. S.O.	
All Mgmt. Areas	Degree to which standards and guidelines, as presented in the Plan, are being met.	J	J22	Annual	Mod.	10% Sample of mgmt. activities	Annual	S.O.	
All Separately	Recreation Conflict 1. Between recreation activities. 2. With other resources.	A, B		Annual		Narrative report from oberservation and survey.	Every 5 Yrs.	Districts: Collect data and assist in preparation of evaluation reports. Forest: Coordinate, summarize data, and prepare evaluation reports.	Determination of intolerable conflict.

Table 5-1 Monitoring Program Guidelines

Mgmt. Area	**Activity, Practice or Effect to be Monitored**	**Program Element(s)**	**Activity Code(s)**	**Frequency of Measure**	**Accuracy**	**Technique or Data Source**	**Evaluation Reporting Period**	**Responsibility**	**Bounds Beyond Which Further Evaluation is Needed**
All Separately	ORV Use	A, B		Annual		1. Other resources, surveys and data base. 2. Observation. 3. Narrative.	Every 5 Yrs.	District: Collect data and assist in preparation of evaluation reports. Forest: Coordinate, summarize data, and prepare evaluation reports	Excessive use or resource damage.
All Separately	Recreation Outputs: 1. Recreation use by Mgmt. Area, District, Forest, and Zone (Wilderness) 2. Interpretive programs.	A, B	A07 A08 B03	Annual		1. RIM System: a. Unit of Measure: -RVD -Visits -Activity 2. Number and frequency of interpretive programs. 3. Wilderness permit system 4. Survey/observation.	Every 2 yrs.	Districts: Collect data and assist in preparation of evaluation reports. Forest: Coordinate, summarize data, and prepare evaluation reports.	1. Wilderness @ 15% Accomplishment of annual targets, objectives or planned production 2. All Other Mgt. Areas @25% accomplishment of established targets, objectives, or planned production.
All Separately	Recreation Opportunity: 1. Provision of Opportunity: a.PAOT and PAOT days by site facilities and Mgmt. Area or Zone (Wilderness)	A, B	A07 A08	Annual		1. RIM System 2. Trail Inv. 3. Wilderness permits. 4. R-6 Wilderness objectives	Every 5 yrs.	Districts: Collect data and assist in preparaation of evaluation reports.	1.25% lack of or excessive capacity utilization of management areas including zones or portions of wilderness areas.
	b.Miles of trail provided	L	L23						
	2. Utilization of Opportunity: RVD or visit to PAOT ratio by: Site Mgmt. area Zone	A, B							

Table 5-1 Monitoring Program Guidelines

Mgmt. Area	Activity, Practice or Effect to be Monitored	Program Element(s)	Activity Code(s)	Frequency of Measure	Accuracy	Technique or Data Source	Evaluation Reporting Period	Responsibility	Bounds Beyond Which Further Evaluation is Needed
All Separately	3. Condition of Developed Sites	A						Forest: Coordinate, summarize data, and prepare evaluation reports	2. 20% of facilities in unacceptable condition class (3 through 8). Ref. FSH122.31–3
	4. Recreation Opportunity Spectrum Category a. R.O.S. Attribute b. R.O.S. Direction			2 years		Update of R.O.S. Inventory	Every 4 Yrs.	inventory.	1. 10% change in 2. Incorrect implementation on 10% of a R.O.S. area categorization in plan.
All Separately	Recreation Costs 1. Operation 2. Investment	A, B		Annual		1. RIM System 2. Budget System.	Every 2 yrs.	District: Collect data and assist in preparation of evaluation reports.	1. Inadequate or excess money allocated and used for objective accomplishment. 2. Exceeding cost effectiveness standards.
Bald Eagles	Nesting population and reproductive success in coop. with State ODF	C	C01	Annual	High	Aerial and ground obser.	5 years	District w/S.O. coord	25% drop in nesting no.'s or 50% nesting failure.
Bald Eagle, Spotted Owl, Osprey	Nesting habitat condition: 1. Suitable nest and perch trees 2. Understory comp. and replacement trees 3. Insect infest.	C, E	C01 E03	First yr. of Plan then every 10 years	High	Stand exams	10 Yrs.	R.D.	N.A.
Bald Eagle, Spotted Owl, Osprey	Habitat improvement practices: 1. Proper species and age classes 2. Proper stocking level 3. Fuels 4. Volume of wood	C, E	C01 E03	Upon completion of activity	High	Stand exams	10 yrs.	R.D.	Inadequate no. of nest trees or replacement trees
Bald Eagle, Spotted Owl, Osprey	Levels of dispersed recreation use during nesting season.	C	600	Annual	Mod.	Observa.	5 years	R.D.	Frequent nest relocation or nest failure 2 years in a row.

Table 5-1 Monitoring Program Guidelines

Mgmt. Area	Activity, Practice or Effect to be Monitored	Program Element(s)	Activity Code(s)	Frequency of Measure	Accuracy	Technique or Data Source	Evaluation Reporting Period	Responsibility	Bounds Beyond Which Further Evaluation is Needed
Bald Eagle, Spotted Owl, Osprey	Road Mgmt.	C	600	Annual	Mod.	Observa. of effectiveness of closures	5 Yrs.	R.D.	Continued use on closed roads within nesting habitat
Bald Eagle	Water mgmt. at Crane Prairie, Wickiup, and Crescent Reservoirs	C	600	Annual	High	Watermaster; stream flow records	N.A.	SO Forest: Coordinate, summarize data, and prepare evaluation reports.	Change in drawdown rate during nesting season
Osprey Habitat	1. Nesting population and reproductive success in coop. with State.	C	C01	Annual	High	Aerial & ground observations	5 Yrs. with S.O. coordination	R.D.	25% drop in nesting population or 50% nesting failure
	2. Number and location of active and inactive nests.	C	C01	Annual	High	Aerial & ground observations	5 Yrs.	R.D.	Loss of 25% of all nesting sites.
	3. Number of "over water" nest sites and rate at which they are being lost (Crane Prairie).	C	C01	Annual	High	Aerial & boat counts	5 Yrs.	R.D.	Loss of 25 percent of current nest sites.
	4. Dispersed recreation & boating activity	C	C01	Annual	Mod.	Ground & boat survey to determine human activity near nests.	5 Yrs.	R.D.	25% abandonment of nests
	5. Vehicle access	C	C01	Annual	Mod.	Observation during above activities & traffic counts.	5 Yrs.	R.D.	Continued use of closed roads during nesting season.
	6. Water Management at Crane Prairie, Wickiup, and Crescent Lakes.	C	C01	Annual	High	Watermaster, Irrigation Districts	N.A.	Hydrologist, Biologist.	Change in drawdown rules during nesting seasons. Change in storage capacity.
	7. Salmonoid populations at Crane Prairie, Wickiup, and Davis Lakes.	C	C01	Annual	Mod.	ODFW	5 Yrs.	R.D.	Unexpected change in salmonoid age distribution or abundance.

Table 5-1 Monitoring Program Guidelines

Mgmt. Area	Activity, Practice or Effect to be Monitored	Program Element(s)	Activity Code(s)	Frequency of Measure	Accuracy	Technique or Data Source	Evaluation Reporting Period	Responsibility	Bounds Beyond Which Further Evaluation is Needed
Resident Trout	Activities which could alter fish habitat.	C	C01	Every other year	Mod.	Evaluation of temp., channel stability, substrate type and fish populations.	Every 2 years	S.O. R.D.	Unexpected change in salmonoid age distribution or abundance
Deer Habitat	1.Deer population level; age & sex ratios.	C	C01	Annual	Mod.	Aerial & ground surveys	Annual	ODFW	ODFW population target is not met, or is exceeded, in 2 consecutive years.
	2. Habitat Condition: a. Forage Production b. Forage Utilization by livestock and deer.	C,D	C01 D02	Annual	Mod.	Production-utilization transects	Annual	R.D.	Total exceeds "proper use standards" on key deer ranges for 2 consecutive years.
	3.Habitat Condition: a.Cover-forage arrangement b.Variety of forage c.Age class variety in the shrub community. d.Size of treatment units e.Volume of wood produced. f.Livestock use patterns. g.Reforestation success (5 years suitable; 20 years unsuitable)	C,E,D	C01 E03 D02	Annual	Mod.	Deer habitat inventory which is updated annually as mgmt. practices are accomplished	5 Yrs.	R.D. with S.O. coordination	
	4.Vehicle and Human Use	C	C01	Annual	Mod.	Ground survey traffic counts	5 Yrs.	R.D.	Road closures violated, decreasing use by deer.
General Wildlife									
Woodpeckers	Existing & future snags and associated habitat	C	C01	5 Yrs.	Mod	Activity reviews, available stand exams, field reviews	5 years	R.D S.O.	Standard not met on more than 25% of area evaluated.
Goshawks	Acres Nesting Habitat Available	C	C01	10 Yrs.	Mod	Vegetation Map; Spot inventories	10 Years	S.O. Biologist	If 25% less than what was predicted to be available at end of the planning period.

Table 5-1 Monitoring Program Guidelines

Mgmt. Area	Activity, Practice or Effect to be Monitored	Program Element(s)	Activity Code(s)	Frequency of Measure	Accuracy	Technique or Data Source	Evaluation Reporting Period	Responsibility	Bounds Beyond Which Further Evaluation is Needed
Great Blue Heron	1.Nesting Population and Rookeries	C	C01	Annual	Mod.	Ground Survey	5 years	ODFW	25% Population decrease in 2 consecutive years.
	2.Rookeries Protection	C	C01	Annual	Mod.	Ground Survey	5 years	R.D.	
Waterfowl	Breeding Populations	C	C01	Annual	Mod.	Ground & Aerial Survey	5 Years consecutive years.	ODFW	50% population decrease in 2 consecutive years.
Wolverine, Peregrine Falcon	Occurrence & Distribution	C	C01	Continuous	Low	ODFW, FSWS	Annual	S.O. Biologist	
Elk	Population Trend & Distribution; age and sex ratios	C	C01	Annually Assist State	Low	Field Reconnaissance	5 years	ODFW	ODFW population target is not met or is exceeded, in 2 consecutive years.
Northern Spotted Owl Habitat	1.Nesting population & reproductive success in cooperation with State	C	C01	Annual	High	Calling & observation	5 Yrs.	R.D. with S.O. coordination	20% drop in nesting numbers or 50% nesting failure.
	2.Habitat Management Practices: a. Proper size of treatment units. b.Multistoried stands developing. c.Age class distribution within the SOMA.	C,E	C01 E03	5 Years	High	Stand Silviculture exams	5 Yrs.	R.D.	Improper distribution of one class within the SOMA.
All Diversity	1.Successional C,E stages of major timber types.			5 years	Mod.	Vegetation inventory map	5 Years	S.O.	25% change from what was predicted.
Economics	1. Resource Values 2. Govt. Revenues 3. County Receipts			Annual	Mod.	Annual Reports	3 Years	S.O.	N.A.

APPENDIX 1

LAND OWNERSHIP SITUATION

(Refer to the Land Status Map when using the following information.)

Land Adjustment Prescriptions for Blocks A Through N Identified in Group 3-C

A. (Squaw Back Addition) - Rearrangement of ownership patterns for mutual benefits of owners.

B. (Squaw Back Ridge) - Retraction area. National Forest lands to be used in exchanges.

C. (Squaw Back Ridge Extension) - Land outside Forest boundary. Land acquisition if wildlife habitat cannot be protected with county zoning regulations. Most of this block is outside the Forest exchange boundary. A land exchange boundary adjustment is needed prior to acquisition.

D. (Black Butte) - Rearrangement of ownership patterns for mutual benefit of owners.

E. (Bull Springs) - Retraction area. National Forest lands to be used in exchanges.

F. (Bull Springs Addition) - Rearrangement of ownership patterns for mutual benefit of landowners.

G. (Trout Creek) - Retraction area. National Forest land to be used in exchanges.

H. (North Century Drive) - Retraction of ownership, subject to existing claims to Federal lands.

I. (Lower Deschutes) - Rearrangement of ownership to acquire stream frontage and consolidate other Federal holdings.

J. (Masten) - Rearrangement of ownership patterns for mutual benefit of landowners.

K. (Dorrance) - Retraction area. National Forest lands to be used in exchanges.

L. (Jackpine Village) - Retraction area. National Forest lands to be used in exchanges.

M. (Spring Butte) - Retraction Area. National Forest lands to be used for exchange purposes.

N. (Crescent Area) - Rearrangement of ownership patterns for mutual benefit of landowners.

Table A-1-1 Acres of Private and Other Public Lands by Groups and Subgroups

Group	Other Public				Private		Total Other Public and Private
	BLM	State	County	Parks & Rec.	Industry	Other	
1	--	--	--	--	--	--	0
2	165	200	--	80	6,815	6,440	13,700
3							
3A	80	545	40	--	1,030	490	2,185
3B	--	--	--	--	565	8,125	8,690
3C	270	200	--	645	181,345	15,025	197,485
3D	--	--	--	--	--	--	0
Subtotal 3	(350)	(745)	(40)	(645)	(182,940)	(23,640)	(208,360)
4	--	445	140	--	950	32,155	33,690
5	46,000	1,900	--	--	12,300	28,100	88,300
TOTAL	**46,515**	**3,290**	**180**	**725**	**203,005**	**90,335**	**340,050**

Table A-1-2 Acres of Land Potentially Available for Adjustment by Groups and Subgroups

Group	USFS	Other Public				Private		Total Other Public and Private
		BLM	State	County	Parks & Rec.	Industry	Other	
1	--	--	--	--	--	--	--	0
2	--	165	200	--	80	6,815	6,440	13,700
3								
3A	--	80	545	40	--	1,030	490	2,185
3B	3,880	--	--	5	8,125	8,690		
3C								
Rearrangement[1]	64,305	--	200	--	--	78,415	7,715	86,330
Retraction[2]	2,030	--	--	--	--	--	--	--
External Areas[3]	--	270	--	--	--	2,500	5,440	8,210
Subtotal 3-C	(66,335)	(270)	(200)	(0)	(0)	(80,915)	(13,155)	(94,540)
3D	40	--	--	--	--	--	--	--
4	200	--	--	--	--	--	--	--
TOTALS	70,455	515	945	40	80	89,325	28,210	119,115

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[1] Rearrangement of ownership patterns (Blocks a, d, b, i, j, n).

[2] Retraction Areas (Blocks b, e, g, h, k, l, m).

[3] External Area - Not included in present exchange boundary (Block c).

Table A-1-3 Potential Acres of Land Where Rights to be Acquired in Group 2 - by Management Areas.

Management	Other Public			Private		Total Other Public
Areas	BLM	State	Parks & Rec.	Industry	Other	and Private
1	--	--	40	--	--	40
3	--	--	--	--	55	55
7	165	--	40	2,560	3,725	6,490
9	--	200	--	4,255	345	4,800
11	--	--	--	--	1,535	1,535
12	--	--	--	--	140	140
13	--	--	--	--	640	640
	165	200	80	6,815	6,440	13,700

Table A-1-4 Acres of Land Potentially Available for Adjustment in Group 3C (by Block)

		Other Public				Private		Total
Group	USFS	BLM	State	County	Parks & Rec.	Industry	Other	Other Public and Private
a	2,320	--	--	--	--	1,520	--	1,520
b	--	--	--	--	--	--	--	0
d	16,350	--	--	--	--	8,495	--	8,495
e	50	--	--	--	--	--	--	0
f	3,830	--	--	--	--	4,775	--	4,775
g	160	--	--	--	--	--	--	0
h	1,105	--	--	--	--	--	--	0
i	1,760	--	--	--	--	--	1,665	1,665
j	2,945	--	--	--	--	.	905	
k	160	--	--	--	--	--	--	0
l	555	--	--	--	--	--	--	0
m	--	--	--	--	--	--	--	0
n	40,550	--	200	--	--	62,720	6,050	68,970
Sub-total	69,785	(0)	(200)	(0)	(0)	(78,415)	(7,715)	(86,330)
c	--	270	--	--	--	2,500	5,440	8,210
TOTAL	**69,785**	**270**	**200**	**0**	**0**	**80,915**	**13,155**	**94,540**

APPENDIX 2

RECREATION OPPORTUNITY SPECTRUM

Primitive

Area is characterized by essentially unmodified natural environment of fairly large size. Interaction among users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted. Large mammals and wildlife species which are not too tolerant of human presence.

Semi-Primitive Nonmotorized

Area is characterized by a predominately natural or natural-appearing environment of moderate to large size. Interaction among users is low, but there often is evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is not permitted. Large mammals which are not too tolerant of human presence.

Semi-primitive Motorized

Area is characterized by a predominately natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there often is evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is permitted. Wildlife species mid-range between those tolerant of human presence and those not.

Roaded Modified

This area is characterized by a setting that is heavily modified by human activity. Access is generally easy for highway vehicles. The setting is generally the result of intensive commodity production. There are no size criteria. Concentration of users is low, but there is considerable evidence of others. Users have a moderate degree of isolation from the sights and sounds of other people.

Roaded Natural

Area is characterized by predominately natural-appearing environment with moderate evidence of the sights and sounds of humans. Such evidence usually harmonizes with the natural environment. Interaction among users may be low to moderate, but with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design of facilities. Large mammals tolerant of human presence; those not tolerant present infrequently. Prevalence of smaller wildlife species.

Rural

Area is characterized by substantially modified natural environment. Resource modification and utilization practices are primarily to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction among users is often moderate to high. Many of the facilities are designed for use by a large number of people. Facilities often are provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available. Wildlife species limited mostly to those tolerant of human presence.

Urban

Area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans on site, are predominant. Large numbers of users can be expected, both on site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site. Wildlife species restricted to those highly tolerant of human presence.

ROS Activity Opportunities

Primitive/Semiprimitive Nonmotorized

Viewing outstanding scenery
Enjoying unique and/or unusual environments
Hiking
Cross-country ski touring and snowshoeing
Horseback riding
Canoeing
Sailing
Other nonmotorized watercraft use
Swimming
Diving (skin or scuba)
Fishing
Photography
Camping
Snowplay
Hunting (big, small game; upland birds and waterfowl)
Nature study
Acquiring general knowledge/understanding
Unguided hiking
General information

Semiprimitive Motorized

Viewing outstanding scenery
Enjoying unique and/or unusual environments
Hiking
Cross-country ski touring and snowshoeing
Horseback riding
Canoeing
Sailing
Other nonmotorized watercraft use
Swimming
Diving (skin or scuba)
Fishing
Photography
Camping
Snowplay
Hunting (big, small game; upland birds and waterfowl)
Nature study
Acquiring general knowledge/understanding
Unguided hiking
General information
Motor-driven ice and snowcraft
ORV touring
Power boating

Roaded Natural/Roaded Modified

Viewing outstanding scenery
Enjoying unique and/or unusual environments
Hiking
Cross-country ski touring and snowshoeing
Horseback riding
Canoeing
Sailing
Other nonmotorized watercraft use
Swimming
Diving (skin or scuba)
Fishing
Photography
Camping
Snowplay
Hunting (big, small game; upland birds and waterfowl)
Nature study
Acquiring general knowledge/understanding
Unguided hiking
General information
Motor-driven ice and snowcraft
ORV touring
Power boating
Picnicking
Gathering forest products
Auto touring
Downhill skiing
Water skiing and other water sports
Automobile camping
Viewing interpretive signs
Organization camping
Lodges
Resort-commercial public services
Resort lodging

Rural/Urban

Viewing outstanding scenery
Enjoying unique and/or unusual environments
Hiking
Cross-country ski touring and snowshoeing
Horseback riding
Canoeing
Sailing
Other nonmotorized watercraft use
Swimming
Diving (skin or scuba)
Fishing
Photography
Camping
Snowplay
Hunting (big, small game; upland birds and waterfowl)

Nature study
Acquiring general knowledge/understanding
Unguided hiking
General information
Motor-driven ice and snowcraft
ORV touring
Power boating
Picnicking
Gathering forest products
Auto touring
Downhill skiing
Water skiing and other water sports
Automobile camping
Trailer camping
Viewing interpretive signs
Organization camping
Lodges
Resort-commercial public services
Resort lodging
Competition games
Ice skating
Scooter-motorcycle use
Bicycling
Spectator sports
Jogging
Passive use of developed parks and open space
Outdoor concerts

ROS Experience Opportunities

Primitive

Extremely high probability of experiencing considerable isolation from the sights and sounds of humans, independence, closeness to nature, tranquility, and self-reliance through the application of woodsman skills in an environment that offers a high degree of challenge and risk.

Semiprimitive Nonmotorized

High, but not extremely high, probability of experiencing the above listed primitive natural environment elements.

Semiprimitive Motorized

Moderate probability of experiencing the above listed primitive natural environment elements, except that there is a high degree of interaction with the natural environment. Opportunity is available to use motorized equipment while in the area.

Roaded Modified

Probability for experiencing affiliation with individuals and groups is prevalent but there are opportunities to experience a moderate degree of isolation. Opportunities exist to have a high degree of interaction with the environment, but it may have been significantly changed through logging activity. Challenge and risk opportunities associated with more primitive types of recreation are not very import Opportunities for both motorized and nonmotorized forms of recreation are present.

Roaded Natural

About equal probability of experiencing affiliation with other user groups and isolation from sights and sounds of humans. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities associated with more primitive type of recreation are not very important. Practice and testing of outdoor skills might be important. Opportunities for both motorized and nonmotorized forms of recreation are possible.

Rural

Probability for experiencing affiliation with individuals and groups is prevalent, as is the convenience of sites and opportunities. These factors are generally more important than the physical setting. Opportunities for wildland challenges, risk-taking, and testing of outdoor skills are generally unimportant except for specific activities like downhill skiing, for which challenge and risk-taking are important elements.

Urban

Probability for experiencing affiliation with individuals and groups is prevalent, as is the convenience of sites and opportunities. Experiencing natural environments, having challenges and risks afforded by the natural environment, and the use of outdoor skills are relatively unimportant. Opportunities for competitive and spectator sports and for passive uses of highly human-influenced parks and open spaces are common.

Appendix 3

Recreation Management Development Levels

Environmental Modification	Development Scale	Recreation Experiences
Minimum site modification. Rustic or rudimentary improvements designed for protection of the site rather than comfort of the users. Use of synthetic materials avoided. Minimum controls are subtle. No obvious means of regimentation. Spacing informal and extended to minimize contacts with others. Motorized access not provided or permitted.	1 Primitive	Primitive forest environment is dominant. Rudimentary and isolated development sites beyond the sight or sound of inharmonious influences. Maximum opportunity for experiencing solitude, testing skills and compensating for the routines of daily living. User senses no regimentation. Feelings of physical achievement in reaching site is important.
Little site modification. Rustic or rudimentary improvements designed for protection of the site rather than comfort of the users. Use of synthetic materials avoided. Minimum controls are subtle. Little obvious regimentation. Spacing informal and extended to minimize contacts with others. Motorized access provided or permitted. Primary access over primitive roads.	2 Secondary Primitive	Near primitive forest environment. Outside influences present but minimized. Feeling of accomplishment associated with low standard access is important but does not necessarily imply physical exertion to reach site. Opportunity for solitude and chance to test outdoor skills is present.
Site modification moderate. Facilities about equal for protection of site and comfort of users. Contemporary/rustic design of improvements is usually based on use of native materials. Inconspicuous vehicular traffic controls usually provided. Roads may be hard surfaced and trails formalized. Development density about 3 family units per acre. Primary access to site may be over high standard well traveled roads. VIS, if available is informal and incidental.	3 Intermediate	Forest environment is essentially natural. Important that a degree of solitude is combined with some opportunity to socialize with others. Controls and regimentation provided for safety and well-being of user sufficiently obvious to afford a sense of security but subtle enough to leave the taste of adventure.
Site heavily modified. Some facilities designed strictly for comfort and covenience of users but luxury facilities not provided. Facility designs may tend toward and incorporate synthetic materials. Extensive use of artificial surfacing of roads and trails. Vehicular traffic controls present and usually obvious. Primary access usually over paved roads. Development density 3-5 family units per acre. Plant materials usually native. Visitor Information Services frequently available.	4 Secondary Modern	Forest environment is pleasing and attractive but not necessarily natural. Blending of opportunities for solitude and socializing with others. Testing of outdoor skills on site mostly limited to the camping activity. Many user comforts available. Contrast to daily living routines is moderate. Invites marked sense of security.
High degree of site modification. Facilities mostly designed for comfort and convenience of users include showers, bath houses, laundry facilities, and electrical hookups. Synthetic materials commonly used. Formal walks or surfaced trails. Regimentation of users is obvious. Access usually by high speed highways. Development density of 5 or more family units per acre. Plant materials may be foreign to the environment. Formal VIS services usually available. Designs formalized and architecture may be contemporary. Mowed lawns and clipped shrubs not unusual. (Class 5 sites only provided in special situations or close to large cities where other lands are not available.)	5 Modern	Pleasing environment attractive to the novice or highly gregarious camper. Opportunity to socialize with others very important. Satisfies urbanites' needs for compensating experiences and relative solitude but less intensive than in Classes 1-4. Obvious to user that he is in secure situation where ample provision is made for his personal comfort and he will not be called upon to use undeveloped skills.

APPENDIX 4

WILDERNESS PLANS

Introduction

Overall direction for wilderness management is included in the Management Area Prescription section of the Forest Plan. These plans provide additional direction that was developed for situations unique to a particular wilderness or for concerns identified by local wilderness managers. Specific direction in this section is additional and subordinate to the Forest Plan.

MT. JEFFERSON WILDERNESS MANAGEMENT DIRECTION

OCCUPANCY

Situation

There are no nonconforming facilities within the Wilderness.

RECREATION CAPACITY

Situation

Specific areas in the Wilderness are receiving use in excess of capacity as evidenced by:

1. Increasing resource damage such as soil compaction, trampling of vegetation, loss of ground cover, cutting green vegetation, declining water quality, and snag removal. This is especially severe in subalpine areas that are ecologically slow to recover.

2. Opportunities for solitude, challenge, and primitive recreation are declining in specific areas.

3. Comparisons of visitor numbers with an estimated carrying capacity reveal excessive numbers of visitors during various portions of the season. This is occurring in the following areas:

021 - Jefferson Park
031 - Pamelia Lake
032 - Hunts Cove
041 - Marion Lake
052 - Mowich Lake
053 - Duffy Lake
054 - Santiam Lake
071 - Square Lake
082 - Wasco Lake
092 - Cabot Lake
093 - Carl Lake

Objective

Determine and manage a standard and capacity of visitor use that will preserve and restore the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Specific direction for each zone (Primitive Trailless, Primitive Trailed, Semiprimitive, and Transition) are contained in the Wilderness Management Area prescription, of the Forest Plan.

Capacity Range for the Mt. Jefferson Wilderness (See Table A-4-1)

Capacities shown in Table A-4-1 are maximum for various Wilderness Recreation Opportunity Spectrum (WROS) Zones. The capacities are expressed in terms of People at One Time (PAOT). Monitoring programs will establish capacities for specific areas within the Wilderness and these capacities will be based on the standards in Table A-4-1. These numbers may be adjusted based on the Limits of Acceptable Change (LAC) process described in the Wilderness Prescription section of Chapter 4 in the Forest Plan.

Table A-4-1 Capacity Range for the Mt. Jefferson Wilderness

	WROS Zones									
	Primitive Trailless		Primitive Trailed		Semi-Primitive Trailed		Semi-Primitive Transition		Total	
Forest	Acres	PAOT	Acres	PAOT	Acres	PAOT	Acres	PAOT	Acres	PAOT
Deschutes	25,000	10-20	2,600	51-72	4,000	98-149	1,134	17-84	32,734	176-325
Willamette	55,778	25-42	6,015	117-168	9,279	228-345	1,493	23,111	72,565	393-666
Mt. Hood	2,000	8-16	1,100	21-31	693	17-25			3,793	46-72
Total	**82,778**	**43-78**	**9,715**	**189-271**	**13,972**	**343-519**	**2,627**	**40-195**	**105,299**	**615-1,063**

Corrective Action

The following are specific areas where corrective actions should be implemented during the planning decade. Some of these actions may currently be in effect or planned.

Grazing is prohibited within 200 horizontal feet of any lake (Forest Order No. 7, June 18, 1984).

Jeff Park - 021

1. Prohibits fires (July 1-September 15) annually.
2. Prohibit overnight stays by visitors under special-use permit (outfitter guide operations).
3. Restrict camping to designated sites at Russell, Scout, Bays, Rock, and Park Lakes and adjacent to PCT.
4. Prohibit camping on Scout Lake Peninsula and Bays Lake Peninsula (Order No. 7).
5. Prohibit or discourage tent sites or fires in open meadow areas. Campsites should be under cover of trees.

Pamelia Lake (Short Range) - 031

1. Prohibit overnight stays by visitors under special-use permit (outfitter-guide operations).
2. Restrict camping to designated sites.

Pamelia Lake (Long Range) - 031

1. Reconstruct trailhead with overnight facilities and restrict Pamelia Lake area to day-use only.

Hunts Cove - 032

1. Prohibit overnight stays by visitors under special-use permit (outfitter- guide operations).
2. Restrict camping to designated sites.
3. Prohibit camping within 100 horizontal feet of high water mark of Hanks and Hunts Lake (Order No. 7).
4. Prohibit building, maintaining, attending, or using a fire, campfire, or stove fire within 100 horizontal feet of the high water mark of Hanks and Hunts Lake (Order No. 7).

Marion Lake - 041

1. Prohibit overnight stays by visitors under special-use permit (outfitter- guide operations).
2. Restrict camping to designated sites.
3. Prohibit camping within 100 horizontal feet of the high water mark of Lake (Order No. 7).
4. Install toilets. 1984 - 2 toilets done, 1985 - 2 toilets.
5. Prohibit building, maintaining, attending, or using a fire, campfire, or stove within 100 horizontal feet of the high water mark of Lake.

6. Camping on the West Marion Lake Peninsula is prohibited (Order No. 7).

Duffy Lake - 053, Jorn Lake, Mowich Lake - 052, and Santiam Lake - 054

1. Same as Hunts Cove.

2. Establish approved livestock campsites with primitive hitch rails and/or corrals: north end of Mowich Lake, east of Red Butte and Jorn Lakes, north end of Duffy Lake, Duffy Meadows, northeast of Santiam Lake.

3. Indicate general grazing areas by signing.

TRANSPORTATION (TRAILS)

Situation

Resource damage is occurring from utilization of some improperly designed and located trails and trailheads.

Objective

Provide and maintain a trail system to a standard that will meet management needs for protecting resources and distributing visitor use, eliminate duplication of routes, and minimize maintenance costs.

Management Direction

1. Relocate and reconstruct the following trails to meet the above objective:

   Pacific Crest Tr. (PCT) 2000
   Santiam Lodge Tr. 3496
   Bowerman Tr. 3492
   South Breitenbush Tr. 3375
   Swallow Lake Tr. 3488
   Bear Valley Tr. 6
   Canyon Creek Meadows (Glacier) Tr. 10
   Two Springs Tr. 5
   Brush Creek Tr. 4
   Round Lake Tr. 12
   Old Summit Tr. 14

The following trailheads need reconstruction to provide adequate parking. Toilets are also needed for these facilities.

   Whitewater Trail
   Pamelia Trail
   Duffy Trail
   Summit Trail
   Bear Valley Trail

RANGE

Situation

No commercial grazing takes place within the Wilderness.

Objective

Maintain the Wilderness free from commercial grazing.

Management Direction

Issue no commercial grazing permits.

COMMERCIAL OPERATIONS

Situation

Activities associated with the issuance of recreation (outfitter guide) permits are approaching the point where adverse impacts in some areas are surfacing.

Objective

Reduce or eliminate the adverse effects on the Wilderness setting caused or contributed by recreation permittees within the Wilderness.

Management Direction

Commercial use will be managed in accordance with the direction contained in the Wilderness Prescription section of the Forest Plan. In addition, Table A-4-2 lists the maximum amount of commercial use, in service days, that will be permitted. A service day is a day or any portion of a day that a client of a commercial operator is on the National Forest.

Table A-4-2 - Commercial Use in Service Days

Wilderness Outfitter Guides

Type of Commercial Use	Total Service Days
Animal Packers	345
Educational	200
Other	156
Totals	701

THREE SISTERS WILDERNESS MANAGEMENT DIRECTION

OCCUPANCY

Situation

There are facilities within the Wilderness that are nonconforming with the Wilderness concept. They are:

Trail Shelters

1. Buck Meadows
2. James Creek
3. Mink Lake
4. Cliff Lake

Lookouts

1. Olallie
2. Rebel Rock

Guard Station

1. Olallie

Cabins

1. Muskrat Lake
2. Rebel Rock
3. Unnamed, undiscovered, or other miscellaneous cabins and structures.

Makeshift cabins and shelters have also occasionally been constructed within the Wilderness.

Objective

Remove existing improvements, structures, and facilities not essential to the protection of the Wilderness resource.

Management Direction

After a cultural resource evaluation, if applicable, remove facilities that are not permitted, no longer usable, serviceable, or unsafe and facilities attracting use and causing resource damage. Do not maintain, or permit others to maintain, these structures.

RECREATION CAPACITY

Situation

Specific areas in the Wilderness apparently are receiving use in excess of capacity as evidenced by:

1. Increasing resource damage such as soil compaction, trampling of vegetation, loss of ground cover, cutting green vegetation, declining water quality, and snag removal. This is especially severe in the subalpine and alpine areas where recovery is slow.

Impacted Zones

022	Sunshine-Obsidian Falls-Arrowhead Lake
081	Green Lakes
050	Mink Lake
072	South Matthieu Lake
031	Eileen Lake-Husband Lake-Linton Meadows
021	Linton Lake
020	Proxy Falls
091	Sisters Mirror Lake Area
041	Horse Lake
077	Golden Lake
082	Morain Lake
075	Chambers Lakes
077	Park Meadow
	Erma Bell Lakes
	Otter Lake

2. Opportunities for solitude, challenge, and primitive recreation are declining in specific areas.

Travel Zones

021	Linton Lake
022	Sunshine-Obsidian, Arrowhead
030	Proxy Falls
032	Eileen-Husband-Linton
034	Chambers Lakes

041	Horse Lake
042-090	Sisters Mirror Lake Area
050	Mink Lake Shelter Area
072	South Matthieu Lake
074	Soap Creek Crossing
075	Camp Lake
077	Golden Lake
081	Green Lakes
082	Moraine Lake
	Erma Bell Lakes
	Otter Lake

Trails

3311	Lower French Pete Trail
17	Fall Creek Trail
14	6 Lakes Trail
3563	Erma Bell Trail
	Irish Mountain Trail
72	Pole Creek Trail (Green Lakes Spur)
	Main Climbing Routes to the Three Sisters
75	Park Meadow

Objective

Determine and manage a standard and capacity of visitor use that preserves and restores the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Specific direction for each zone (Primitive Trailless, Primitive Trailed, Semiprimitive, and Transition) are contained in Wilderness Management Area Prescription, Chapter 4, of the Forest Plan.

Capacity Range for Three Sisters Wilderness Area (See Table A-4-3)

Capacities shown in Table A-4-3 are maximum for various Wilderness Recreation Opportunity Spectrum (WROS) Zones. The capacities are expressed in terms of People at One Time (PAOT). Monitoring programs will establish capacities for specific areas within the Wilderness and these capacities will be based on the standards in Table A-4-3. These numbers may be adjusted based on the LAC process described in the Wilderness Prescription section of Chapter 4.

Corrective Action

The following are specific areas where corrective actions should be implemented during the planning decade. Some of these actions may currently be in effect or planned.

Grazing is prohibited within 200 horizontal feet of any lake (Forest Order No. 5 6/18/84).

Area	Number
Green Lakes	081

Prohibit building, maintaining, attending, or using a fire, campfire, or stove fire, except for a pressurized liquid or gas stove within one mile of any one of the 3 Lakes known as Green Lakes (Forest Order No. 5).

TRANSPORTATION

Situation

1. Excessive numbers of visitors are being drawn into Wilderness areas by (1) trails being

Table A-6 Capacity Range for Three Sisters Wilderness

	WROS Zones									
	Primitive Trailless		Primitive Trailed		Semi-Primitive Trailed		Semi-Primitive Transition		Total	
Forest	**Acres**	**PAOT**	**Acres**	**PAOT**	**Acres**	**PAOT**	**Acres**	**PAOT**	**Acres**	**PAOT**
Deschutes	72,647	29-51	11,300	183-280	4,700	149-203	5,600	260-416	94,247	621-950
Willamette	146,793	60-110	22,994	372-570	9,044	287-392	10,515	490-782	189,346	1209-1854
Total	**219,440**	**89-161**	**34,294**	**555-850**	**13,744**	**436-595**	**16,115**	**750-1198**	**283,593**	**1830-2804**

constructed and maintained to higher than necessary standards and (2) trails routed directly to attractive sites and areas.

2. Substandard trail alignment is causing resource damage.

Objective

Provide and maintain a trail system to a standard that will meet legal direction, management needs for protecting resources and distributing visitor use, eliminate duplication of routes, and minimize maintenance costs.

Management Direction

Modify trail maintenance and construction standards in order to achieve Wilderness objectives. Modified standards can address clearing widths, "step-over" logs, alignment, maximum grade, bridge needs, and drainage.

Develop and implement a trail relocation and reconstruction plan that emphasizes correction of poor alignment and is designed to distribute use away from overused areas. Trails to be included are:

Trails	Number
Buck Meadows	3520
Starwano	3537
Portions of McBee	3523
Pacific Crest Trail	2000
Erma Bell Lakes Trail	3563

RANGE

Situation

Public complaints have been received concerning commercial grazing in the Wilderness causing degradation of the Wilderness resource and visitors' experience.

Objective

Minimize the impact of grazing upon the Wilderness experience of visitors while utilizing the Wilderness range resource according to law and policy.

Management Direction

1. Advise visitors within the information and education program of (1) areas they can visit within the Wilderness where grazing does not occur, and (2) the legal basis and purpose of commercial grazing within the Wilderness.

2. Encourage techniques in allotment management and management of grazing animals that will minimize impacts on the natural Wilderness environment and the experience of Wilderness visitors.

COMMERCIAL OPERATIONS

Situation

Activities associated with the issuance of recreation (outfitter guide) permits are adversely impacting the Wilderness by encouraging excessive numbers of people in the same area at one time, encouraging use by large groups inappropriate to a Wilderness setting, and increasing the likelihood of site damage from overuse.

Objective

Reduce or eliminate the adverse effects on the Wilderness setting caused or contributed by uncontrolled issuance of recreation permits within the Wilderness.

Management Direction

Commercial use will be managed in accordance with the direction contained in the Wilderness Prescription section of the Forest Plan. In addition, Table A-4-4 lists the maximum amount of commercial use, in service days, that will be permitted. A service day is a day or any portion of a day that a client of a commercial operator is on the National Forest.

Table A-4-4 - Commercial Use in Service Days:
Wilderness Outfitter Guides

Type of Commercial Use	Total Service Days
Animal Packers	663
Educational	5,854
Other	459
Totals	6,976

MT. WASHINGTON WILDERNESS MANAGEMENT DIRECTION

OCCUPANCY

Situation

There are no nonconforming facilities within the Wilderness.

RECREATION CAPACITY

Situation

Specific areas in the Wilderness apparently are receiving use in excess of capacity as evidenced by:

1. Increasing resource damage such as soil compaction, trampling of vegetation, loss of ground cover, cutting of green vegetation, declining water quality, and snag removal. This is especially severe in ecologically slow recovery subalpine areas.

2. Opportunities for solitude, challenge, and primitive recreation are declining in specific areas.

3. Impacted areas are:

    Benson Lake 033
    Tenas Lake 032
    Hand Lake 034
    Patjens Lakes 011

Objective

Determine and manage standards of capacity of visitor use (PAOT) that preserve and restore the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Specific direction for each zone (Primitive Trailless, Primitive Trailed, Semiprimitive, and Transition) are contained in the Wilderness Management Area Prescriptions, Chapter 4, of the Forest Plan.

Capacity for the Mt. Washington Wilderness (See Table A-4-5)

Capacities shown in Table A-4-5 are maximum for various Wilderness Recreation Opportunity Spectrum (WROS) Zones. The capacities are expressed in terms of People at One Time (PAOT). Monitoring programs will establish capacities for specific areas within the Wilderness and these capacities will be based on the standards in Table A-4-5. These numbers may be changed through the LAC Process described in the Wilderness Prescription Section of Chapter 4.

Capacities shown in Table A-4-5 are maximum for various Wilderness Recreation Opportunity Spectrum (WROS) Zones. The capacities are expressed in terms of People at One Time (PAOT). Monitoring programs will establish capacities for specific areas within the Wilderness and these capacities will be based on the standards in the Prescriptions of the Wilderness Management Area.

Corrective Action

Wilderness settings must be restored. The goals and prescriptions for the Wilderness Management Area within the Forest Plan identify the types and sequence of corrective actions that should be used to accomplish restoration. Following are specific areas where corrective actions should be implemented during the planning decade. Some of these actions may currently be in effect or planned.

Grazing is prohibited within 200 horizontal feet of any lake (Order No. 6, June 18 1984).

Area	Number
Patjens Lake	011
Tenas Lake	032
Benson Lake	033
Hand Lake	034

Table A-4-5 Capacity Range for the Mt. Washington Wilderness

	WROS Zones									
	Primitive Trailless		**Primitive Trailed**		**Semi-Primitive Trailed**		**Semi-Primitive Transition**		**Total**	
Deschutes	12,500	1-9	2,000	56-61	706	34-28	0	0	15,206	91-98
Willamette	37,349	16-28	1,813	51-56	1834	88-1364	0	0	40,996	155-1448
Total	**49,849**	**17-37**	**3,813**	**107-117**	**2540**	**122-1392**			**56,202**	**246-1556**

TRANSPORTATION

Situation

1. Excessive numbers of visitors are being drawn into Wilderness areas by (1) trails being constructed and maintained to higher than necessary standards, and (2) trails routed directly to attractive sites and areas.
2. Excessive maintenance widths in flatter areas of some trails are causing trail systems to grow to excessive widths.

Objective

Determine and manage a standard and capacity of visitor use that preserves and restores the Wilderness resource and opportunities for Wilderness recreation.

Management Direction

Modify trail maintenance and construction standards in order to achieve Wilderness Resource Management Objectives. Modified standards can address clearing widths, "step-over" logs, alignment, maximum grade, and bridge needs and drainage. Adopt standards applicable to setting objectives by zone (primitive and semiprimitive).

Develop and implement a Trail Relocation and Reconstruction Plan that emphasizes correction of poor alignment and is designed to distribute use. Maintenance and preservation of the inventoried recreation oppportunity spectrum categories of various areas will be the objective used to decide trail locations and routing. Trails to be included are Benson (from Benson Lake to Scott Mtn.) - 3502 and PCT 2000.

RANGE

Situation

No commercial grazing takes place in the Wilderness.

Objective

Maintain the Wilderness free from commercial grazing.

Management Direction

Issue no commercial grazing permits.

COMMERCIAL OPERATIONS

Situation

Activities associated with the issuance of recreation (outfitter guide) permits are minimal in the Wilderness.

Objective

Prevent adverse effects on the Wilderness setting.

Management Direction

Commercial use will be managed in accordance with the direction contained in the Wilderness Prescription section of the Forest Plan. In addition, Table A-4-6 lists the maximum amount of commercial use, in service days, that will be permitted. A service day is a day or any portion of a day that a client of a commercial operator is on the National Forest.

Table A-4-6 - Commercial Use in Service Days

Wilderness Outfitter Guides

Type of Commercial Use	Total Service Days
Animal Packers	0
Educational	0
Other	30
Totals	30

DIAMOND PEAK WILDERNESS MANAGEMENT DIRECTION

OCCUPANCY

Situation

There are facilities within the Wilderness which do not conform with the Wilderness concept.

1. Cabin - 300 yards south of Diamond Rockpile Lake.
2. Cabin - Approximately in SW1/4, sec. 23, T. 23 S., R. 5-½ E.
3. Snow Pillow Site - Soil Conservation Service.

Objective

Remove existing improvements, structures, and facilities not essential to the protection of the Wilderness resource.

Management Direction

After a cultural resource examination, determine cultural status of existing cabins. Eliminate or retain according to direction in overall standards and guidelines for Wilderness management areas.

Determine cultural status of other cabins and occupancies within one year of discovery. If they are found not be be significant, eliminate within one year or retain according to direction in overall standards and guidelines for Wilderness Management Areas.

No new cabins, structures, or occupancies will be permitted to be established. Work with the Soil Conservation Service on the relocation of their Snow Pillow Site outside Wilderness.

RECREATION CAPACITY

Situation

The only area that appears to be utilized over its capacity is Vivial Lake.

Objective

Determine and manage a capacity of visitor use that will protect and preserve Wilderness values and the Wilderness recreation experience.

Management Direction

Specific direction for each zone (Primitive Trailless, Primitive Trailed, Semiprimitive, and Transition) are contained in the Wilderness Management Area Prescription, Chapter 4, of the Forest Plan.

Capacity Range for the Diamond Peak Wilderness (See Table A-4-7)

Capacities shown in Table A-4-7 are maximum for various Wilderness Recreation Opportunity Spectrum (WROS) Zones. The capacities are expressed in terms of People at One Time (PAOT). Monitoring programs will establish capacities for specific areas within the Wilderness and these capacities will be based on the standards in Table A-4-7. These numbers may be adjusted through the LAC Process described in the Wilderness Prescription section of Chapter IV.

TRAILS

Situation

Opportunities exist to distribute and disperse visitor use by making adjustments to the existing trail system.

Opportunities exist to improve trail location, ease trail maintenance, and eliminate duplication of trail routes.

Objective

Provide and maintain a trail system to a standard that will meet legal direction, management needs for protecting resources and distributing visitor use,

Table A-4-7 Capacity Range Determined for the Diamond Peak Wilderness

Table A-6 Capacity Range for Three Sisters Wilderness

	WROS Zones									
	Primitive Trailless		**Primitive Trailed**		**Semi-Primitive Trailed**		**Semi-Primitive Transition**		**Total**	
Deschutes	23,500	12-16	7,000	136-217	3,000	102-167	500	27-83	34,000	277-483
Willamette	14,803	7-11	3,285	64-102	1,493	51-83	192	10-32	19,773	132-228
Total	**38,303**	**19-27**	**10,285**	**200-319**	**4,493**	**153-250**	**672**	**37-115**	**53,773**	**409-711**

eliminate duplication of routes, and minimize maintenance costs.

Management Direction

Establish a new junction of Crater Butte Trail No. 44.1 with the Pacific Crest Trail in order to eliminate portions of this trail paralleling the Pacific Crest Trail.

Relocate various sections of Trail No. 49 to eliminate steep grades.

Examine the feasibility of eliminating creek crossings and providing adequate access by relocating Trail No. 49 from the first crossing of Yoran Creek to the Yoran Lake area. Construct if feasible and desirable for this purpose.

The Pacific Crest Trail should be maintained to a Level III standard within the Wilderness.

COMMERCIAL OPERATIONS

Situation

There are no commercial operations in the Diamond Peak Wilderness.

Objective

Permit only those commercial operations that are essential for the users of the area.

Management Direction

Commercial use will be managed in accordance with the direction contained in the Wilderness Prescription section of the Forest Plan.

APPENDIX 5

PLANNED TIMBER SALES PROGRAM 1987 - 1996

This Appendix is intended to provide some information on individual planned timber sales, and to facilitate a comparison between the current Five Year Timber Sale Action Plan and the proposed Forest Plan allowable sale quantity. However, while assembling the necessary information for this Appendix, some unexpected differences were encountered in the way the timber program was planned, implemented, and monitored in the past, and the way it is intended to be in the future. The next few paragraphs should help to clarify some of these inconsistencies in accounting and calculation techniques between the old Plan and the new Plan.

First, at this time it is expected that the new Forest Plan will be implemented for a 10-year period of time starting in FY 1987 and ending in FY 1996, while the existing Timber Sale Action Plan on the Forest spans the five years from 1986 through 1990. In making the transition from the current amended 1974 Timber Management Plan to the new proposed Forest Plan, many of the timber sales which are planned for the years 1987 through 1990 will be implemented in accordance with the new Forest Plan. The timber sales which are planned for this four-year period are at varying stages of development. The estimates of acreages and volumes for these sales are tentative, and will very likely need to be revised based upon final field location and measurements. Nonetheless, the following tables display the currently planned timber sales for the years 1987 through 1990. An average annual timber sale program which is needed to achieve the balance of the timber management objectives for the 10-year period is displayed for the remaining six years of the decade (1991 - 1996).

Second, there is a difference between the existing Timber Sale Action Plan and the proposed Forest Plan in terms of the units which harvest volumes are calculated. FORPLAN harvest scheduling for the Forest Plan was calculated in terms of cubic feet. Yet the harvest volumes in the existing Timber Sale Action Plan are displayed in board feet. For comparison purposes, the volumes had to be converted to common terms. The Forest Plan allowable sale quantity cubic foot volumes were converted to board feet based upon working group diameter specific conversion ratios. However, the working groups in the current Timber Management Plan are different from those in the Forest Plan. In the former, the ponderosa pine and mixed conifer working groups of the Forest Plan are aggregated into the "pine and associated working group". In addition, the diameters of the trees planned for harvest in the Timber Sale Action Plan are not identified. Therefore, the planned board foot volumes were converted to cubic feet based upon broader averages of the conversion ratios for the aggregated working groups.

Third, the harvest display categories have been expanded from the traditional Standard and Special components to the new Management Areas. Essentially, the General Forest Management Area can be equated to the Standard component, while the Scenic Views, Deer Habitat, and the Bald Eagle and Spotted Owl Managment Areas comprise the Special component. While the proposed allowable sale quantity is displayed by Management Area, the current Timber Sale Action Plan is presented only in terms of the Standard and Special components. This doesn't mean that sales are not currently planned in these "special" Management Areas, but only that the breakdown of planned sales in these areas is not easily retrieved from the Timber Sale Action Plan. Therefore, the proposed allowable sale quantity and the planned annual sales programs can only be meaningfully compared by examining the total annual programs, and the Standard and Special sub-totals.

Finally, the acres planned for harvest to achieve the annual allowable sale quantity in the following tables do not exactly match the acres displayed in the FORPLAN report and DEIS for the preferred alternative. The difference lies in the way shelterwood acres are accounted for in the model. FORPLAN counts each acre of shelterwood as only one acre regenerated per decade instead of two acres of harvest entries to reflect that both the regeneration cut and the overstory removal usually occur within a ten-year period of time. Therefore, the number of acres which FORPLAN assumes to be shelterwooded (primarily the 80 percent of lodgepole pine regeneration harvesting) are doubled for purposes of these tables in order to reflect that they are actually entered twice, and probably under different sale contracts, in order to remove the planned allowable sale quantity volume.

The information in the following tables is presented to give an idea of how the transition from the current Timber Management Plan to the new Forest Plan may occur. Basically, the tables indicate how the timber sales currently planned for the years 1987 through 1990 fit into the overall framework of the proposed Forest Plan annual allowable sale quantity. While the information is provided on a year by year, and sale by sale basis, it is not detailed enough to guide the implementation and monitoring of the Forest Plan. Reports will be developed, but not published in the Forest Plan, which will provide direction for timber harvesting activities for the next ten years by implementation unit, management area, working group, and silvicultural activity. It is these reports which will guide the overall implementation and monitoring of the timber program so that the goals and objectives of the Forest Plan are achieved.

Tables 5-1 through 5-4 compare of the proposed annual allowable sale quantity to the current planned sale statements for fiscal years 1987 through 1990. Table 5-5 shows what the average annual sales program for the years 1991 through 1996 would have to be in order to achieve the balance of the proposed allowable sale quantity for the first decade of the Forest Plan. While the currently planned timber sales programs for the fiscal years 1987 through 1990 vary somewhat around the proposed Forest Plan allowable sale quantity, the net effect after the first four years of the ten-year planning period is that the harvested acres and volumes are on course with the proposed alowable sale quantity targets.

Table 5-1 Comparison of Proposed Annual Allowable Sale Quantity and the Current Programmed Sales Statement for Fiscal Year 1987

Program Component, Management Area and Activity	Average Annual ASQ			Planned Sales		
	Acres	MMCF	MMBF	M Acres	MMCF	MMBF
STANDARD:						
GENERAL FOREST:						
Thinning	2,170	1.09	5.26			
Overstory Rem.	4,860	9.89	50.55			
Regen. Harvest	24,180	28.08	106.93			
TOTAL STANDARD	**31,210**	**39.05**	**162.74**	**31,736**	**42.0**	**180.1**
SPECIAL:						
SCENIC VIEWS:						
Thinning	780	.51	2.64			
Overstory Rem.	400	.79	4.02			
Regen. Harvest	2,330	5.72	29.83			
Scenic Views Totals	3,510	7.02	36.49			
DEER HABITAT:						
Thinning	1,100	.23	1.02			
Overstory Rem.						
Regen. Harvest						
Deer Habitat Totals	1,100	.23	1.02			
EAGLES & OWLS:						
Thinning	30	.02	.07			
Overstory Rem.						
Regen. Harvest	90	.33	1.83			
Eagle & Owl Totals	120	.35	1.90			
ALL SPEC. MGMT. AREAS						
Thinning	1,910	.76	3.73			
Overstory Rem.	400	.79	4.02			
Regen. Harvest	2,420	6.05	31.66			
TOTAL SPECIAL	**4,730**	**7.60**	**39.41**	**6,226**	**10.6**	**46.1**
TOTAL ANNUAL SALE QUANTITY	**35,940**	**46.66**	**202.15**	**37,962**	**52.6**	**226.2**

Table 5-2 Comparison of Proposed Annual Allowable Sale Quantity and the Current Programmed Sales Statement for Fiscal Year 1988

Program Component,	Average Annual ASQ			Planned Sales		
Management Area and Activity	M Acres	MMCF	MMBF	M Acres	MMCF	MMBF
STANDARD:						
GENERAL FOREST:						
Thinning	2,170	1.09	5.26			
Overstory Rem.	4,860	9.89	50.55			
Regen. Harvest	24,180	28.08	106.93			
TOTAL STANDARD	**31,210**	**39.05**	**162.74**	**29,328**	**37.5**	**160.1**
SPECIAL:						
SCENIC VIEWS:						
Thinning	780	.51	2.64			
Overstory Rem.	400	.79	4.02			
Regen. Harvest	2,330	5.72	29.83			
Scenic Views Totals	3,510	7.02	36.49			
DEER HABITAT:						
Thinning	1,100	.23	1.02			
Overstory Rem.						
Regen. Harvest						
Deer Habitat Totals	1,100	.23	1.02			
EAGLES & OWLS:						
Thinning	30	.02	.07			
Overstory Rem.						
Regen. Harvest	90	.33	1.83			
Eagle & Owl Totals	120	.35	1.90			
ALL SPEC. MGMT. AREAS						
Thinning	1,910	.76	3.73			
Overstory Rem.	400	.79	4.02			
Regen. Harvest	2,420	6.05	31.66			
TOTAL SPECIAL	**4,730**	**7.60**	**39.41**	**8,649**	**13.0**	**52.8**
TOTAL ANNUAL SALE QUANTITY	**35,940**	**46.66**	**202.15**	**37,977**	**50.5**	**212.9**

Table 5-3 Comparison of Proposed Annual Allowable Sale Quantity and the Current Programmed Sales Statement for Fiscal Year 1989

Program Component, Management Area and Activity	Average Annual ASQ			Planned Sales		
	M Acres	MMCF	MMBF	M Acres	MMCF	MMBF
STANDARD:						
GENERAL FOREST:						
Thinning	2,170	1.09	5.26			
Overstory Rem.	4,860	9.89	50.55			
Regen. Harvest	24,180	28.08	106.93			
TOTAL STANDARD	**31,210**	**39.05**	**162.74**	**28,379**	**40.8**	**164.4**
SPECIAL:						
SCENIC VIEWS:						
Thinning	780	.51	2.64			
Overstory Rem.	400	.79	4.02			
Regen. Harvest	2,330	5.72	29.83			
Scenic Views Totals	3,510	7.02	36.49			
DEER HABITAT:						
Thinning	1,100	.23	1.02			
Overstory Rem.						
Regen. Harvest						
Deer Habitat Totals	1,100	.23	1.02			
EAGLES & OWLS:						
Thinning	30	.02	.07			
Overstory Rem.						
Regen. Harvest	90	.33	1.83			
Eagle & Owl Totals	120	.35	1.90			
ALL SPEC. MGMT. AREAS						
Thinning	1,910	.76	3.73			
Overstory Rem.	400	.79	4.02			
Regen. Harvest	2,420	6.05	31.66			
TOTAL SPECIAL	**4,730**	**7.60**	**39.41**	**4,933**	**10.4**	**44.2**
TOTAL ANNUAL SALE QUANTITY	**35,940**	**46.66**	**202.15**	**33,312**	**51.2**	**208.6**

Table 5-4 Comparison of Proposed Annual Allowable Sale Quantity and the Current Programmed Sales Statement for Fiscal Year 1990

Program Component, Management Area and Activity	Average Annual ASQ			Planned Sales		
	M Acres	MMCF	MMBF	M Acres	MMCF	MMBF
STANDARD:						
GENERAL FOREST:						
Thinning	2,170	1.09	5.26			
Overstory Rem.	4,860	9.89	50.55			
Regen. Harvest	24,180	28.08	106.93			
TOTAL STANDARD	**31,210**	**39.05**	**162.74**	**25,496**	**34.8**	**152.7**
SPECIAL:						
SCENIC VIEWS:						
Thinning	780	.51	2.64			
Overstory Rem.	400	.79	4.02			
Regen. Harvest	2,330	5.72	29.83			
Scenic Views Totals	3,510	7.02	36.49			
DEER HABITAT:						
Thinning	1,100	.23	1.02			
Overstory Rem.						
Regen. Harvest						
Deer Habitat Totals	1,100	.23	1.02			
EAGLES & OWLS:						
Thinning	30	.02	.07			
Overstory Rem.						
Regen. Harvest	90	.33	1.83			
Eagle & Owl Totals	120	.35	1.90			
ALL SPEC. MGMT. AREAS						
Thinning	1,910	.76	3.73			
Overstory Rem.	400	.79	4.02			
Regen. Harvest	2,420	6.05	31.66			
TOTAL SPECIAL	**4,730**	**7.60**	**39.41**	**4,384**	**8.7**	**38.6**
TOTAL ANNUAL SALE QUANTITY	**35,940**	**46.66**	**202.15**	**29,880**	**43.5**	**191.3**

Table 5-5 Comparison of Proposed Annual Allowable Sale Quantity and the Average Annual Timber Sales Program for Fiscal Years 1991-1996

Program Component, Management Area and Activity	Average Annual ASQ			Aver. Annual Program		
	M Acres	MMCF	MMBF	M Acres	MMCF	MMBF
STANDARD:						
GENERAL FOREST:						
Thinning	2,170	1.09	5.26			
Overstory Rem.	4,860	9.89	50.55			
Regen. Harvest	24,180	28.08	106.93			
TOTAL STANDARD	**31,210**	**39.05**	**162.74**	**32,860**	**39.2**	**161.7**
SPECIAL:						
SCENIC VIEWS:						
Thinning	780	.51	2.64			
Overstory Rem.	400	.79	4.02			
Regen. Harvest	2,330	5.72	29.83			
Scenic Views Totals	3,510	7.02	36.49			
DEER HABITAT:						
Thinning	1,100	.23	1.02			
Overstory Rem.						
Regen. Harvest						
Deer Habitat Totals	1,100	.23	1.02			
EAGLES & OWLS:						
Thinning	30	.02	.07			
Overstory Rem.						
Regen. Harvest	90	.33	1.83			
Eagle & Owl Totals	120	.35	1.90			
ALL SPEC. MGMT. AREAS						
Thinning	1,910	.76	3.73			
Overstory Rem.	400	.79	4.02			
Regen. Harvest	2,420	6.05	31.66			
TOTAL SPECIAL	**4,730**	**7.60**	**39.41**	**3,851**	**5.6**	**35.4**
TOTAL ANNUAL SALE QUANTITY	**35,940**	**46.66**	**202.15**	**36,711**	**44.8**	**197.1**

Tables 5-6, 5-7, 5-8, and 5-9 are listings of the planned timber sales for the fiscal years 1987 through 1990 respectively. For each sale, its number and name are identified. Also included are the tentative estimates of harvest unit acres and board foot volume. Finally, some sale specific comments are included in order to flag potential conflicts between the way these sales have been tentatively laid out under the current Land Management Plan, and the new management area boundaries under the proposed Forest Plan. More detail on the specifics of each of these sales, such as proposed harvest methods and miles of road construction or reconstruction. can be obtained from the "Gates" timber sale database. A map of the tentatively proposed timber sale boundaries is also available in the Supervisor's Office.

Table 5-6 1987 Proposed Timber Sales

Number	Sale Name	M Acres	MMBF	Comments
870101	Bear Wallows LP Salvage	700	3.0	3% of the sale area boundary is in the Winter Recreation Mgmt. Area and may need adjustments or special coordination.
870102	Brown's Mtn. #2	650	8.0	45% of the sale area boundary is in the Bald Eagle and Osprey Mgmt. Area while the remainder is in retention or partial retention Scenic Views, and will require special coordination.
870103	Crane-Lemish LP OR	725	3.0	10% of the sale area boundary is in the Intensive and Undeveloped Recreation Mgmt. Areas, and the RNA Mgmt. Area and may need to be adjusted. 21% of the sale involves the Bald Eagle and Osprey Mgmt. Area while 29% is in retention or partial retention Scenic Views, and will require special coordination.
870104	Cultus	500	7.0	32% of the sale area involves the Bald Eagle and Spotted Owl Mgmt. Area while 59% is in retention or partial retention Scenic Views, and will require special coordination.
870105	Indian Creek LP #2	800	6.0	52% of the sale area is in retention or partial retention Scenic Views and will require special coordination.
870106	Lolah #2	750	9.0	
870107	Lucky #2 Lp Salvage	250	1.5	17% of the sale area overlaps into the Intensive Recreation and Wilderness Mgmt. Areas and may need boundary adjustments.
870201	C & R	680	12.6	
870202	Hamroy FSW (BBS)	895	10.1	33% of the sale area involves retention and partial retention Scenic Views and will require special coordination.
870203	Mutt-N-Jeff (BBS)	376	4.0	
870204	Relay	392	3.5	51% of the sale area involves the Scenic Views Mgmt. Area and will require special coordination.

Table 5-6 1987 Proposed Timber Sales

Number	Sale Name	M Acres	MMBF	Comments
870205	Collins LP	769	3.8	5% of the sale area overlaps into the Oregon Cascade Recreation Area and may need boundary adjustments.
870301	Firestone	3777	15.1	6% of the sale area involves the Scenic Views Mgmt. Area and may require special coordination.
870302	Crater Butte 3	2800	15.5	10% of the sale area involves the Scenic Views Mgmt. Area and may require special coordination.
870303	Pumice Butte	1460	6.2	7% of the sale area involves retention and partial retention Scenic Views and may require special coordination.
870304	Draw LP Fiber Salvage	3700	16.0	6% of the sale area involves retention and partial retention Scenic Views and may require special coordination.
870305	South Prairie	1883	9.0	12% of the sale area involves retention and partial retention Scenic Views and may require special coordination.
870306	Delake LP Fiber Salvage	1600	6.0	
870307	S. Sand Spring LP Sal.	1652	6.6	
870501	Upper Jack	680	10.0	3% of the sale area overlaps into the Wilderness Mgmt. Area and may need boundary adjustments. Another 17% of the sale area involves Spotted Owl habitat and Scenic Views, and will require special coordination.
870502	Two Creek	970	11.3	24% of the sale area involves game species habitat and/or scenic views, and will require special coordination.
870503	Walla Bear	650	10.0	21% of the sale area overlaps into private lands, Intensive Recreation, Winter Recreation, and Scenic Views Management Areas, and may need boundary adjustments and special coordination.
870504	Abbot Springs	180	4.5	12% of the sale area overlaps into the Wilderness Mgmt. Area and will require boundary adjustments. Another 47% involves the Spotted Owl and/or Scenic Views Mgmt. Areas and will require special coordination.
870505	Scout	720	9.1	38% of the sale area overlaps private lands and the Intensive Recreation Mgmt. Area. Another 12% involves the Bald Eagle Mgmt. Area. This sale may require boundary adjustments and special coordination.

Table 5-7 1988 Proposed Timber Sales

Number	Sale Name	M Acres	MMBF	Comments
880101	204 LM	400	3.0	All of this sale area is in the Scenic Views so special coordination will be necessary.
880102	Benchmark-Applejack	650	7.0	15% of the sale area overlaps into RNA, Intensive Recreation, and Undeveloped Recreation Mgmt Areas so boundary adjustments may be necessary. 26% of the sale area involves Bald Eagle Habitat and Scenic Views, and will require special coordination.
880103	Green-repeat LP OR	675	3.0	17% of the sale area involves the Scenic Views Mgmt. Area and will require special coordination.
880104	Humongous LP OR	450	1.0	39% of the area overlaps into the Intensive Rec. Mgmt. Area and may require boundary adjustments. 28% of the area involves Bald Eagle Habitat and Scenic Views, and will require special coordination.
880105	Last Resort LP Salvage	700	2.5	53% of the sale area overlaps into the Intensive Recreation and Winter Recreation Mgmt. Areas and may require boundary adjustments.
880106	Pahoehoe-Kuamaksi	600	7.0	22% of the sale area overlaps the Winter Recreation Mgmt. Area and may require adjustments. 15% involves partial retention foreground visuals and will require special coordination.
880107	Snowjob LP OR	600	4.0	13% of the sale area overlaps Intensive Recreation and may need adjusting. 14% of the area involves Scenic Views and will require special coordination.
880108	Twin Lakes	230	3.0	35% of the area overlaps the Intensive Recreation Mgmt. Area and may require boundary adjustments. 65% of the area involves Scenic Views and Bald Eagle Mgmt. Areas and will require special coordination.
880109	Unlucky	300	3.0	
880201	Marten (BBS)	976	9.0	90% of the sale area involves either Bald eagle Habitat or Scenic Views and will require special coordination.
880202	Highway West	270	4.1	
880203	Pits	838	7.0	

Table 5-7 1988 Proposed Timber Sales

Number	Same Name	M Acres	MMBF	Comments
880204	Skalkam	778	6.0	12% of the area overlaps onto the Intensive Recreation Mgmt. Area and may require boundary adjustments. 57% involves Scenic views and will require special coordination.
880205	Cool	375	3.4	
880206	Windy LP	696	5.4	7% involves Scenic Views and will require special coordination. 9% of the area overlaps into the Oregon Cascades Recreation Area and may need boundary adjustments.
880301	400 Road LP Salvage	1,830	8.0	28% of the sale area overlaps into the Deer Habitat Mgmt. Area and will require special coordination.
880302	Topso LP Fiber Salvage	2,800	13.0	34% of the sale area involves Scenic Views and will require special coordination.
880303	Kwinnum LP Salvage	2,864	12.4	24% of the area involves either the Deer Habitat or Scenic Views Mgmt. Areas and will require special coordination.
880304	Lulu	1,680	5.0	6% overlaps into the Undeveloped Recreation Mgmt. Area and may need boundary adjustments. 89% involves the Scenic Views Mgmt. Area and will require special coordination.
880305	South Cast	2,510	12.0	12% of the area involves Scenic Views and may require special coordination.
880306	Big Hole	2,550	14.0	12% of the area overlaps private lands and the Special Interest Mgmt. Area and may need boundary adjustments. 70% of the area involves either Deer Habitat or Scenic Views and will require special coordination.
880501	Jack Canyon	405	8.0	38% of the area involves Scenic Views and will require special coordination.
880502	Varmint	840	8.0	30% of the sale area involves Scenic Views and requires special coordination.
880503	Wizard	700	10.0	14% of the sale area overlaps into the Wilderness, Intensive Recreation, and Undeveloped Recreation Mgmt. Areas and will need boundary adjustments. 31% of the area involves Scenic Views and will require special coordination.

Table 5-7 1988 Proposed Timber Sales

Number	Sale Name	M Acres	MMBF	Comments
880504	Round	710	14.5	5% of the sale area overlaps into the Wilderness and Intensive Recreation Mgmt. Areas and may require boundary adjustments. 21% of the sale area involves Bald Eagle and Spotted Owl Habitat, and Scenic Views, and will require special coordination.
880505	Long	235	4.5	23% of the sale area overlaps into the Intensive Recreation Mgmt. Area and may need boundary adjustments. 72% of the area involves either Bald Eagle habitat or Scenic views and will require special coordination.

Table 5-8 1989 Proposed Timber Sales

Number	Sale Name	M Acres	MMBF
890101	Chas LP OR	500	1.5
890102	Davis	250	3.0
890103	Edinoga LP Salvage	325	2.0
890104	Prairie LP Salvage	425	2.5
890105	Round Top	350	4.0
890106	Siah	500	6.0
890107	Sibun-Frolic	1,100	15.0
890201	Twins	725	5.5
890202	Odell Lavas	487	4.1
890203	Eagle	445	3.9
890204	East Flow	486	3.0
890205	Viewshed	455	4.6
890206	Lanyard	710	4.5
890207	Fremont Siding	465	6.2
890301	Nose Mitten LP	805	4.4
890302	Taghum Butte LP	1,700	9.2
890303	Weasel Butte	3,800	15.0
890304	Fishhook LP	1,100	11.6
890305	Westside LP	1,050	8.9
890306	E. Finley LP Salvage	1,700	7.5
890501	Bear Valley	315	6.0
890502	Pole Swamp	300	4.0
890503	Lower Butte	565	7.0
890504	Ridgetop	590	10.0
890505	Driveway	440	8.5
890506	D.J.	375	7.5
890507	Key West	180	2.5

Table 5-9 1990 Proposed Timber Sales

Number	Sale Name	M Acres	MMBF
900101	Caretaker #2	545	7.0
900102	Charleton	910	8.0
900103	End Table LP OR	150	0.5
900104	Klickity OR	400	6.0
900105	Lookout #2 OR	500	6.0
900106	Mutter LP OR	550	3.0
900107	Triangle	250	2.0
900201	Black Rock	640	9.2
900202	East Slope	310	2.4
900203	Micro	470	6.2
900204	Muttonchop	500	6.0
900205	Plucker	900	6.7
900206	Powerline	700	5.1
900301	Dry	2,100	11.5
900302	Hooligan LP 2	1,355	6.9
900303	Chebba	2,246	10.5
900304	N. Bebhardt	785	3.5
900305	Flat Top	1,300	5.0
900306	Unkas LP	1,700	8.5
900501	Monty	330	4.0
900502	Pass Em Up	550	8.0
900503	Graham Cracker	460	7.5
900504	Little Z	330	4.0
900505	Twin Swamp	455	7.0
900506	Cold Cut	405	10.0

The timber monitoring program is still being refined and will be completed for the final plan. The following paragraphs plus Tables 5-10 and 5-11 have been developed in coordination with the Regional Office and help establish some guidelines for monitoring the timber program.

1. When the cumulative chargeable sold volume measured in cubic feet varies more than ± 10 percent of planned volume, an adjustment in sale offerings for the remaining plan period will be triggered. The adjustment will be made with the objective of meeting the decade allowable sale quantity. We may also add noninterchangeable components such as silvicultural working groups to the control package.
2. When cumulative changes greater than ± 5 percent of the acres classified as capable, available, and suitable occur, the allowable sale quantity will be recomputed using the Forest Planning Model (FORPLAN). Cumulative changes in Management Area boundaries greater than 5 percent of the acres classified capable, available, and suitable will also trigger a recomputation of the allowable sale quantity using the FORPLAN model. The Forest Plan will then be amended to portray the allowable sale quantity.
3. When accomplished earned harvest activities vary more than ± 10 percent of the planned level a change to the allowable sale quantity will be made based on a proration adjustment. The Forest Plan will then be amended to portray the new allowable sale quantity.

Table 5-10. Calculation of the Earned Harvest Factor (EHF)

Base Level: Includes prompt restocking with planting stock from genetically selected trees and commercial thinning. Precludes precommercial thinning and release in the General Forest Management Area but permits these TSI activities in special management areas. ____________ MMCF/yr

Full Stocking Level Control: All opportunities for precommercial thinning and release in the General Forest Management Area are captured. ____________ MMCF/yr

Earned harvest gain from precommercial thinning and release on General Forest Management area for an average of ____________ acres each year of Plan. ____________ MMCF/yr

Earned Harvest Factor = $\frac{\text{MMCF}}{\text{Acres}}$ = ____________ ft³acre

Table 5-11. Adjustments to Annual Allowable Sale Quantity for Earned Harvest Accomplishments and Budget Changes

	Acres of PCT & Release	ASQ	Associated Timber Budget Expressed as % of Base Budget
Base Level:			
Preferred Alternative:			
Full Stocking Level Control:			
At 90% of Preferred Alternative Timber Budget:			
At 80% of Preferred Alternative Timber Budget:			
At 70% of Preferred Alternative Timber Budget:			
At 60% of Preferred Alternative Timber Budget:			

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Area Office
2625 Parkmont Lane
Olympia, Washington 98502

Mr. Leon W. Murphy
U.S. Forest Service
P.O. Box 3632
Portland, Oregon 97208

Re: Consultation Reference #1-4-82-F-403

Dear Mr. Murphy:

This is the U.S. Fish and Wildlife Service's (FWS) reply to your January 8, 1982, request for formal consultation under Section 7 of the Endangered Species Act of 1973, as amended, on the proposed Draft Environmental Impact Statement (DEIS) and Forest Plan for the Deschutes National Forest (DNF). The consultation addresses the possible effects of selecting Alternative F of the DEIS and from implementation of this action via the Forest Plan on the bald eagle (*Haliaeetus leucocephalus*), a species Federally classified as threatened in Oregon and the peregrine falcon (*Falco peregrinus anatum*), a species Federally classified as endangered in Oregon.

On March 22, 1982, we completed our review of the proposed Forest Plan and the documents transmitted with your consultation request. During this review, individuals were contacted who had special knowledge or expertise concerning the proposed project, the bald eagle, or the peregrine falcon. These people included Mr. Larry Mullen, U.S. Forest Service, Bend, Oregon; Mr. Jim Bottorff, FWS, Olympia, Washington; Mr. Richard Howard, FWS, Boise, Idaho; Dr. Robert Anthony, Oregon Cooperative Wildlife Research Unit, Corvallis, Oregon; and Mr. Norm Behrens, Oregon Department of Fish and Wildlife, Bend, Oregon. Meetings about the project were held with Mr. Mullen on August 27, 1980 and February 3, 1981.

Biological Opinion

It is our biological opinion that implementation of Alternative F (DEIS) and the proposed Forest Plan action will promote the conservation of the bald eagle and peregrine falcon. To aid in developing a perspective for our opinion, we have included an account of the proposal.

Project Description

The purpose of the DEIS is to present for public review the environmental consequences of selecting a proposed action which emphasizes intensive use and development of natural resources but also identifies options for maintaining undeveloped lands and old-growth ecosystems. Within the DEIS, the current management direction of the Forest and seven alternatives are described under subcategories of timber, range, recreation, Wild and Scenic River designations, old growth timber, deer populations, visual aspects, the Newberry Crater, and bald eagle populations. Alternative F in the DEIS was selected as the preferred alternative by the Forest Service. This alternative encourages development of intensive recreation, permits geothermal exploration and leasing within designated zones of the Newberry Crater, accelerates the harvest of mature and over mature lodgepole pine, and provides for habitat of threatened and endangered wildlife species.

The Forest Plan illustrates the implementation of Alternative F. The Plan will establish the management direction and associated outputs of the Forest for the next 10 years as required by the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974, as amended by the National Forest Management Act (NFMA) of 1976. The Plan will specify the standards and guidelines to achieve the management direction and outputs. It will also provide for monitoring and evaluating tasks needed to ensure that the direction is carried out and to determine how well outputs and effects were predicted.

The Forest has a goal of increasing the number of nesting bald eagles from the current level of 15-20 pairs to 35-40 pairs. To do this, bald eagle management areas have been identified within the Forest. These areas provide nesting habitat for the present population and will be managed to accommodate new nesting pairs. To maintain this nesting habitat, timber prescriptions will be written to achieve uneven age stand composition. Emphasis will be placed on management for old growth ponderosa and/or Douglas fir that will be potentially useable as nest sites and perch trees. The criteria developed for old growth trees include: 1) height to exceed 110 feet; 2) diameter at breast height to be 20 inches or greater; and 3) tree distribution through a management area to be eight trees/acre. Bald eagle nesting habitat and roosting will be increased from the current direction alternative of 5,600 acres to 20,100 acres.

Activities within one quarter mile of an active nest will be restricted between January 1 and July 31. Monitoring of the nesting population and their reproductive success will be conducted on an annual basis in cooperation with the Oregon Department of Fish and Wildlife and the Oregon Cooperative Wildlife Research Unit (OCWRU). Annual monitoring of the effects of drawdown rate at Crane Prairie, Wickiup, and Crescent Reservoirs will be conducted during the nesting season. Recreation use levels will be monitored annually to determine how best to disperse recreation during the nesting season. Road construction will be properly coordinated so as not to disturb nesting eagles, and road closures will be implemented around nests and monitored for their effectiveness.

Management areas will be increased in size for the bald eagle and established for peregrine falcons if peregrines are found nesting on the DNF. When bald eagles or peregrine falcons are encountered outside the present management areas, biologists will determine if the species' use of the habitat is incidental or essential to its needs. If it is determined to be essential, the following steps will be taken: 1) the DNF will protect the habitat from adverse modification through curtailment of conflicting activities, seasonal restrictions of activities, or avoiding the area; 2) the Forest will request Section 7 consultation with the U.S. Fish and Wildlife Service on any proposed action which may affect the species; and 3) for newly discovered habitat, an Environmental Assessment will be prepared to determine if it is necessary to designate the area as essential habitat. If habitat is essential, the Forest Plan will be amended and the essential habitat designations will supersede previous land allocations.

Species Account

Bald Eagles

The Deschutes National Forest annually supports 15 to 20 active pairs of bald eagles. Nests are primarily found in old-growth ponderosa and Douglas fir trees. These active pairs form the core of a greater inland population found around the periphery of DNF and are identified by the OCWRU as the Cascade Lakes Area population. In statewide nest productivity surveys conducted by OCWRU, Anthony (1981) determined the Cascade Lakes Area had the highest production (1.29 young/occupied site) of the three Oregon geographic areas where bald eagles are found breeding. In the same report, Anthony provided a summary of productivity data of the Cascade Lakes Area for the past four years (Table 1).

While some bald eagles are found wintering on the DNF, many move south to the Klamath Basin Area where prey is more available. However, Anthony (1982) found through radio-telemetry of an adult bird in 1981 that it spent the entire winter within its nesting home range. Future studies will determine to what extent this pattern of behavior is found throughout the population.

The DNF provides excellent preybase components for bald eagles. For example, 350 lakes are located within the boundaries of the DNF; 213 have been inventoried and found to support diverse populations of sport and rough fish. The remaining lakes are void of fish life because of oxygen depletion due to ice cover for 6 to 7 months of the year. Thirty-seven species of waterfowl use the larger lakes. David Lake, and Wickiup and Crane Prairie Reservoirs support the majority of these waterfowl populations.

Table 1. Productivity of bald eagles in the Cascade Lakes Area 1978-1981.

Year	Breeding Sites Surveyed	% of Breeding Sites Occupied	% Occupied Breeding Sites Successful	% Breeding Sites That Failed	Young Produced	Young/ Occupied Site	Young/ Successful Site
1978	26	52	100	0	20	1.67	1.67
1979	26	69	67	33	15	1.00	1.50
1980	29	69	63	37	16	.84	1.33
1981	31	70	76	24	27	1.29	1.69

Peregrine Falcons

The peregrine falcon has sustained unprecedented declines as a nesting species in Oregon (Henny, 1981). Its present status in Oregon is limited to one known active eyrie and possibly a few others compared to 42 active eyries early in the century. The Cascade Mountains and eastern Oregon originally supported at least 19 nesting pairs of falcons including one pair on the DNF. The reasons for this dramatic decline of nesting peregrines are complex, but the contributing variables are a climatic drought which began in the 1930's and the accelerated use of DDT to control forest insects (ibid).

No active nests have been observed on the DNF during the last decade. Three documented sightings have been made of peregrine falcons during this time. These sightings may be associated with birds passing through the state as the peregrines did not show an attachment to specific forest geographical areas.

Analysis of Impacts

Implementation of the proposed DEIS and Forest Plan as they relate to bald eagles and peregrine falcons will insure that adequate consideration is given to these wildlife resources. The objectives of the Plan for nesting pairs of bald eagles will meet recommendations that are provided in the draft Pacific Bald Eagle Recovery Plan for the High Cascade zone (Steenhof, 1982). Potential nesting and perching habitat will be provided under the concept of maintaining old-growth trees in bald eagle management areas. Accommodations for new nest sites outside present management areas will be considered under essential habitat designation.

Successful implementation of the Forest Plan will require a more intensive forest manipulation program using timber salvage sales while integrating silvicultural treatments to retain overmature trees. Compliance with the Plan will require funding commitments by the DNF to monitor bald eagle population objectives and timber volume components of each sale within bald eagle management areas. Each management area will need to be evaluated for the allowable sale program and the program sale statement to accommodate the transition period between current direction of the DNF and those identified in Alternative F of the DEIS.

Limitations on other activities will occur with the implementation of the bald eagle and peregrine falcon objectives. Seasonal limitations will be imposed on timber sale and other disruptive activities where active nests are located. Timber outputs will be limited within each bald eagle management area depending on the prescription as it is developed or described in the DEIS and Forest Plan. Recreationists will be restricted in their activities in bald eagle management areas. These restrictions will particularly impact those recreationists using the larger water bodies such as Wickiup and Crane Prairie Reservoirs.

The DNF is one of several core areas in the northwest that provides crucial nesting habitat to bald eagles. The Forest Plan and DEIS represent progressive models which will provide direction to the Forest Service in its regional efforts to meet the needs of this species. The actions outlined in these documents, when fully implemented, will provide an exemplary approach by the Forest Service to manage an enhanced habitat for bald eagles.

Conservation Measures

Sections 2(c) and 7(a)(1) of the Endangered Species Act mandate that all Federal agencies utilize their authorities to carry out programs for the conservation of listed species. We believe the DNF can further develop their Forest Plan by the addition of two other objectives: 1) Within the timeframe of the Plan, studies should be conducted on the DNF to identify the major prey species of bald eagles during the nesting and wintering seasons. These studies should clearly identify the prey species and to what extent each species contributes to the biomass of the preybase. 2) Monitoring should be done in cooperation with the Oregon Department of Fish and Wildlife as to how nesting bald eagles respond when reservoirs, lakes, and streams near their nests are chemically treated in an attempt to change the fishery resource. Chemical treatments of lakes near nesting bald eagles may deplete their food source and cause nesting failure.

Conclusion

After examination of the proposed action, consultation with various federal and state biologists, and review of available data on bald eagles and peregrine falcons, it is our biological opinion that implementation of Alternative F of the DEIS and the Forest Plan will promote the conservation of the bald eagle and peregrine falcon. Implementation of both conservation measures would increase the data and knowledge base necessary for effective management of bald eagles resulting in furthering the promotion of the conservation of this species.

Sincerely,

Margaret J. Kala

for Joseph R. Blum
Area Manager

cc: OES, Washington, D.C.
RD, Portland, OR (AFA-SE)
SE, Boise, ID
Deschutes National Forest

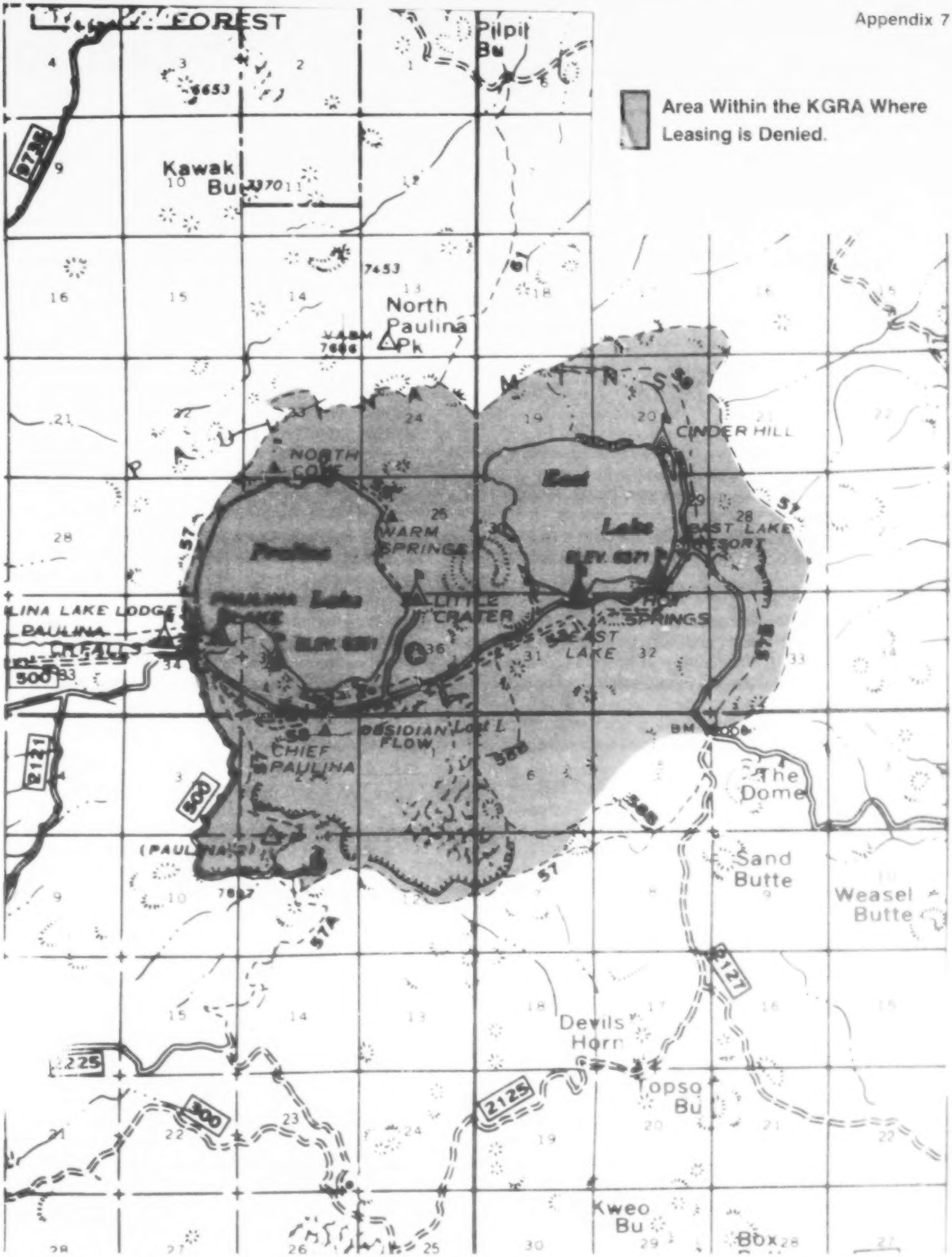
References

Anthony, R. 1981. A summary of nest activity and productivity for bald eagles in three geographic areas of Oregon. On file at Oregon Cooperative Wildlife Research Unit. Oregon State University, Corvallis, Oregon, 2 p.

1982. March 11, personal communication with Endangered Species Staff, Boise, Idaho.

Henny, C.J. and M. Nelson 1981. Decline and present status of breeding falcons in Oregon. The Murrelet, 62:43-53.

Steenhof, K. 1982. March 15, personal communication. Chairperson, Pacific States Bald Eagle Recovery Team. Boise, Idaho.


Area Within the KGRA Where Leasing is Denied.
FOREST
Pilpil Bu
Kawak Bu
North Paulina Pk
NORTH COVE
WARM SPRINGS
Paulina Lake
PAULINA LAKE LODGE
PAULINA FALLS
LITTLE CRATER
ELEV. 6331
East Lake
ELEV. 6371
CINDER HILL
EAST LAKE RESORT
HOT SPRINGS
EAST LAKE
OBSIDIAN FLOW
Lost L.
CHIEF PAULINA
(PAULINA PK)
The Dome
Sand Butte
Weasel Butte
Devils Horn
Topso Bu
Kweo Bu
Box
57
500
2121
2125
2127
2225
9735
7453
7686
7897
BM

GLOSSARY

Acre Equivalent - A conversion factor applied to the actual acres of wildlife habitat improvement to show that a larger area of habitat was improved rather than just the treated acres.

Acre Foot (Ac. Ft.) - A unit for measuring a volume of water. Quantity of water required to cover 1 acre to a depth of 1 foot.

Activity - A measure, course of action, or treatment that is undertaken to directly or indirectly produce, enhance, or maintain forest and rangeland outputs or achieve administrative or environmental quality objectives. FSH 1309.11, The Management Information Handbook sets forth Forest Service activity definitions, codes, and units of measure.

Allocatable Unit - Areas of land which for social, managerial, and/or political reasons should be allocated as a whole or not at all to a particular management area.

Allowable Sale Quantity - The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan for a time period specified by the Plan. This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity." (36 CFR 219.3)

Alternative - One of several policies, plans, or projects proposed for decisionmaking.

Amenity - An object, feature, quality, or experience that gives pleasure or is pleasing to the mind or senses. Amenity value is typically used in land-use planning to describe those resource properties for which market values (or proxy values) are not or cannot be established.

Analysis Area - A delineated area of land subject to analysis of (1) responses to proposed management practices in the production, enhancement, or maintenance of forest and rangeland outputs and environmental quality objectives, and (2) economic and social impacts.

Analysis of the Management Situation - A step required under the National Forest Management Act in which the Forest determines its ability to supply goods and services to meet society's demand for them.

Animal Unit (AU) - An animal unit is a 1,000 pound mature cow, or its equivalent based on an average daily forage consumption of 26 pounds of dry matter per day.

Animal Unit Month (AUM) - The forage requirement for one month (26 pounds x 30.5 days =800 pounds).

Livestock Class	AUM Factors
Mature Cow	1.00
Mature Cow w/Nursing Calf	1.32
Yearling (9-18 months)	0.70
Bull	1.50
Mature Sheep	0.20
Ewe w/lamb	0.30
Horse	1.20

Basal Area - The cross-sectional area of a tree, usually measured at breast height (4-½ feet above the ground). Basal area can be determined for one tree or for all the trees on an acre. The basal area per acre is a measure of the density of tree growth on that acre. Basal area is measured in square feet.

Base Sale Schedule - A timber sale schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than the long-term sustained yield capacity. (36 CFR 219.3)

Benchmark - The process where by a Forest determines it capability to supply outputs both with and without legal requirememts. A determination of the maximum capability within which Alternatives are developed.

Biological Potential - The maximum amount of sustainable wood fiber obtainable by application of intensive management practices to acres classified as commercial forest land.

Board Foot - A volume of solid wood, 1 foot square and 1 inch thick.

Capability - The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils, and geology, as well as on the application of management practices, such as silviculture or protection from fire, insects, and disease.

Capability Area - An area of land which has homogeneous ability to produce various outputs.

CEQ - Council on Environmental Quality.

Chargeable Timber Volume - All volume included in the growth and yield projections for the selected management precriptions used to arrive at the allowable sale quantity, based on regional utilization standards.

Consistent with the definition of timber production, planned production of fuelwood is not included in the allowable sale quantity and therefore is nonchargeable.

Chip Type or Chippable - Refers to a stand of lodgepole pine in which most live stems are under 8.0 inches diameter at breast height or are merchantable dead and sometimes chipped for use as pulpwood.

CCC - Civilian Conservation Corps

Capability Area - An area of land which has relatively homogeneous ability to produce various outputs.

CMAI - Culmination at mean annual increment.

Commercial Forest Land - Forest land that is producing or is capable of producing crops of industrial wood and (a) has not been withdrawn by Congress, the Secretary, or the Chief; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils productivity, or watershed conditions; and (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking can be attained within 5 years after final harvesting.

Commercial Thinning - A cut in a stand under rotation age designed to remove excess merchantable trees. The objective is to place the growth capability of the site on the remaining leave trees.

Commodities - Tangible and intangible products (i.e., outputs of wood, water, wildlife, visuals, etc.) that can be turned to commercial or other advantage.

Common Minerals - Materials such as sand, stone, gravel, pumice (except block pumice), pumicite, or cinders.

Concern - A point, matter, or question raised by management that must be addressed in the planning process.

Confined Fire - To restrict the fire within determined boundaries established either prior to the fire, during the fire, or in an escaped fire situation analysis.

Contained Fire - To surround a fire, and any spot fires therefrom, with control line, as needed, which can reasonably be expected to check the fire's spread under prevailing and predicted conditions.

Controlled Fire - To complete the control line around a fire, any spot fires therefrom, and any interior islands to be saved; burn out any unburned area adjacent to the fire side of the control line; and cool down all hot spots that are immediate threats to the control line, until the line can reasonably be expected to hold under foreseeable conditions.

Conversion Period - A transition period during which an unregulated forest structure is converted to a regulated one. When regulated, the forest will have a distribution of stand age and size classes, providing approximately equal periodic harvests.

Corridor - A linear strip of land identified for the present or future location of transportation or utility rights-of-way within its boundaries.

Cost Effective - Achieving specified outputs or objectives under given conditions for the least cost.

Cost Efficiency - The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs including environmental, economic, or social impacts, are not assigned monetary values but are achieved at specified levels in the least cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates-of-return may be appropriate. (36 CFR 219.3)

Cover/Forage Ratio - The ratio, in percent, of the amount of area in forage condition to that area in cover condition; the criteria by which potential deer and elk use of an area is judged.

Cover - Vegetation used by wildlife for protection from predators, or to ameliorate conditions of weather, or in which to reproduce.

Created Opening - Created openings are openings in the forest created by the silvicultural practices of shelterwood regeneration cutting at the final harvest, clearcutting, seed tree cutting, or group selection cutting.

Culmination of Mean Annual Increment - The age at which the average annual growth is greatest for a stand of trees. Mean annual increment is expressed in cubic feet measure and is based on expected growth according to the management intensities and utilization standards assumed in accordance with 36 CFR 219.16(a)(2)(i) and (ii). Culmination of mean annual increment (CMAI) includes regeneration harvest yields and any additional yields from planned intermediate harvests.

Cultural Resources - The remains of sites, structures, or objects used by humans in the past; historical or archaeological.

Current Direction - As used in this DEIS it is continuing on with the 1978 Land Management Plan for the Deschutes National Forest and the 1974 Timber Management Plan as revised in 1980 and 1984.

d.b.h. - Diameter at breast height. The diameter of a tree measured 4 feet 6 inches from the ground.

d.i.b. - Diameter inside bark.

DEIS - Draft Environmental Impact Statement.

Demand - The amount of an output that users are willing to take at a specified price, time period, and condition of sale.

Departure - A schedule which deviates from the principle of nondeclining flow by exhibiting a planned decrease in the timber sale and harvest schedule at any time in the future.

Developed Recreation - Recreation use that occurs within a site or facility specifically established and constructed for public recreation purposes. Activities commonly included are camping, picnicking, resort use, and downhill skiing, but can also include parking areas, trailheads, boat launching sites, etc.

Discounting - An adjustment, using a discount rate for the values of money over time so that costs and benefits occurring in the future are reduced to a common point in time, usually the present, for comparison.

Dispersed Recreation - Recreation use outside of a developed recreation site, ranging from scenic driving to backpacking.

Diversity - The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan. (36 CFR 219.3)

Ecoclass - A grouping of one or more naturally occurring plant community types.

Ecosystem - The interacting system of a biological community and its nonliving environment.

Effects - Environmental consequences as a result of a proposed action. Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and are later in time or further removed in distance, but which are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in this DEIS are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic quality, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial (40 CFR 1508.8).

Effects, Physical, Biological - The change, positive or negative, in the physical or biological conditions which directly or indirectly results from an activity, project, or program.

Effect, Economic - The change, positive or negative, in economic conditions, including the distribution and stability of employment and income in affected local, regional, and national economies, which directly or indirectly result from an activity, project, or program.

Effect, Social - The change, positive or negative, in social and cultural conditions which directly or indirectly result from an activity, project, or program.

Empirical Yield Table - A table reflecting the existing standing timber volumes today and how they would grow in the future, under various timber managment regimes.

Endangered Species - Any species listed in the Federal Register, which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of the Act would present an overwhelming and overriding risk to man.

Environment - The sum of all external conditions and influence affecting the life, development, and survival of an organism.

Escaped Fire - A fire which has exceeded, or is anticipated to exceed, initial action capabilities or the key fire management direction or prescription.

Escaped Fire Situation Analysis - A decision analysis of those factors influencing suppression of an escaped fire from which a plan of action will be developed. The analysis includes the development of alternative suppression strategies and net effect of each.

Even-Aged Management - The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages (and, therefore, tree sizes throughout the forest area). The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands.

Even Flow - Maintaining a relatively constant supply of timber from year to year.

Experimental Forest - A small portion of the Deschutes National Forest known as the Pringle Falls Experimental Forest which is used as a field laboratory for research.

Extensive Timber Management - A relatively low level of capital is invested in timber practices intended to increase wood fiber production.

Final Overstory Removal - Removal of all of a mature overstory from a manageable immature understory timber stand.

Fire Intensity - The severity of a given fire. Low intensity fires average flame lengths under 4 feet and high intensity fires average flame lengths over 4 feet.

Fire Management Effectiveness Index (FMEI) -

$$\frac{\text{(FMEI)} = \text{(Fire Prog + FFF \$-Fuels Capital Invest. \$ + NVC \$)} \times A}{\text{M Acres Protected} \times SI \times B}$$

When:

A = Consumer Price Index (1979 $ = 1.0)

B = A potential inter-unit workload value now established at 1.0.

SI = Severity Index fixed at 1.0 for planning purposes.

NVC = Net Value Change, expressed as a cost, usually a positive number.

Fire Prog = Fire program, presuppression dollars.

FFF = Fighting forest fire dollars.

Floodplains - The lowland and relatively flat areas adjoining inland and coastal waters, including, at a minimum, that area subject to a one percent or greater chance of flooding in any given year.

Forage - All browse and nonwoody plants available to livestock or wildlife for grazing or harvested for feed.

Forest Influence Area (FIA) - The area surrounding a National Forest that is strongly affected by activities occurring within the Forest.

FORPLAN - The forest planning model. A linear programming software package used to analyze planning decisions regarding land use patterns, capital investment, and timber harvest scheduling.

Fuel Break - A strategically located strip or block of land on which the native vegetation has been modified by appropriate fuel treatment methods to a lighter or less dense fuel type. Fuel breaks break up the continuity of heavy, hazardous fuels so that fires burning to them can be readily controlled.

Fuel Hazard - A supply of vegetative fuel that forms a special threat of ignition or suppression difficulty.

Fuel Treatments - Levels and methods of fuels treatment will be guided by the resource objectives within the Management Area.

Geothermal Energy - Internal heat from the earth.

Habitat - The sum total of environmental conditions of a specific place occupied by a wildlife or plant species or a population of such species.

Harvest Cutting Method - A combination of interrelated actions whereby forests are tended, harvested, and replaced. The combination of management practices used to manipulate the vegetation results in forests of distinctive form and character. Harvest cutting methods are classified as even-aged and uneven-aged.

Hydrologic - Pertaining to the quantity, quality, and timing of water yield from forested lands.

Input/Output Analysis - A technique for analyzing the interdependence of producing and consuming sectors in an economy.

Integrated Pest Management - A process for selecting strategies to regulate forest pests in which all aspects of a pest-host system are studied and weighed. The information considered in selecting appropriate strategies includes the impact of the unregulated pest population on various resources values, alternative regulatory tactics and strategies, and benefit/cost estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pesthost system and consist of a combination of tactics such as timber stand improvement plus selective use of pesticides. A basic principle in the choice of strategy is that it be ecologically compatible or acceptable. (36 CFR 219.3)

Intensive Timber Management - A relatively high level of capital investment in timber management practices intended to increase wood fiber production.

Interdisciplinary - The integrated use of natural and social sciences and the environmental design arts in planning and decisionmaking.

Intensive Forest Management - A high investment level of timber management that envisions initial harvest, regeneration, with genetically improved stock, control of competing vegetation, fill-in planting, precommercial thinning as needed for stocking control, one or more commercial thinnings, and final harvest.

Intermingled Ownerships - Lands within the National Forest boundaries or surrounded by National Forest lands that are owned by private interests or other government agencies. Because of early land grants, these lands frequently are in checkerboard ownership patterns.

Irretrievable - Applies to losses of production, harvest, or use of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

Irreversible - Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long periods. Irreversible also includes loss of future options.

Known Geothermal Resource Area - An area in which the geology, nearby discoveries, competitive interests, or other indicia would, in the opinion of the Secretary of Interior, engender a belief in men who are experienced in the subject matter that the prospects for extraction of geothermal steam or associated geothermal resources are good enough to warrant expenditures of money for that purpose. Under these conditions the leasing would be on a competitive bid basis.

Land Allocation - The decision to use land for various resource management objectives in order to best satisfy the planning process issues, concerns, and opportunities, and meet assigned forest output targets.

Land Capability - A measure of the capability of the land to produce goods and services without imposed restraints, such as lack of manpower and finances or other priority uses and without damage to the land.

Land Suitability - A measure of the suitability of land, as it exists in natural condition, for a single resource use or combination of uses.

Landtype - Units of land with similar vegetative soil, and landform characteristics and capabilities, which respond similarly to management activities.

Leasable Minerals - Generally include minerals such as oil, gas, oil shale, coal, potassium, sodium, phosphates, sulphur, and geothermal. The Deschutes National Forest appears to have potential only for geothermal and possibly oil and gas.

Locatable Minerals - These resources include gold, silver, lead, copper, and mercury, which are mined and processed for metals, and some uncommon nonmetallics.

Long-Term Sustained-Yield Timber Capacity - The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified management intensity consistent with multiple-use objectives.

M - The Roman numeral for 1000.

Maximum Modification - A visual quality objective meaning human activities may dominate the characteristic landscape but should appear as a natural occurrence when viewed as background.

MBF - Thousand board feet (MMBF - million board feet).

Megawatt - One thousand kilowatts.

MMCF - One million cubic feet. New timber management plans express tree or log volume on a cubic foot basis because it is a truer representation of actual volume of wood fiber than is board foot volume. A cubic foot is a volume of wood equivalent to a cube 12 inches on all sides.

Managed Stand - A stand of trees in which stocking level control is applied to achieve maxium growth.

Managed Yield Table - A table showing, for a given species on a given site, the progressive development of a managed stand at periodic intervals covering the greater part of its useful life. It usually includes average diameter, basal area, number of trees, standing volume, and harvest volumes for a specific timber management regime.

Management Areas - A unit of land allocated to emphasize a particular resource, based on the capability of the area.

Management Concern - An issue, problem or a condition which constrains the range of management practices identified by the Forest Service in the planning process.

Management Direction - A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them.

Management Intensity - A management practice or combination of management practices and associated costs designed to obtain different levels of goods and services.

Management Practice - A specific activity, measure, course of action, or treatment.

Management Prescription - Management practices selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives.

Market Resources - Products derived from renewable and nonrenewable resources that have a well-established market value, for example, forage, timber, water, and minerals.

Minimum Viable Population - The low end of the viable population range.

Mitigation - To moderate the force or intensity of environmental effects.

Mixed Conifer - A stand of coniferous trees in which no single species makes up more that 50% of the composition of the stand.

Modification - A visual quality objective meaning human activities may dominate the characteristic landscape but must also utilize naturally established formline, color, and texture. It should appear as a natural occurrence when viewed in foreground or middleground.

Monitoring (Program) - Close evaluation of the implementation of Forest activities for conformance with the standards and guidelines and objectives as stated in the Forest Plan.

Mountain Pine Beetle - A small insect that bores into trees introducing a fungus which can kill the tree if the tree does not successfully repel the attack.

Mortality - The volume of sound wood dying from natural causes during a specified period.

Multiple Use - The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

Municipal Watershed - A watershed that serves a public water system as defined in the Safe Drinking Water Act and associated regulations.

NEPA - National Environmental Policy Act of 1969. A law directing Federal agencies to evaluate environmental effects of proposed action.

Net Public Benefits - An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index.

NFMA - The National Forest Management Act of 1976.

Nonchargeable Volume - All volume not included in the growth and yield projections for the selected management prescriptions used to arrive at the allowable sale quantity.

Noncommercial Forest Land - Unproductive forest land incapable of yielding 20 cubic feet of wood per acre per year because of adverse site conditions and productive forest land withdrawn from commercial timber use through statute or administrative regulation.

Noncommercial Species - Species that have no economic values at this time nor anticipated timber value within the near future.

Nondeclining Flow - See Base Sale Schedule.

Nonforest Land - Lands that never have had or that are incapable of having 10 percent or more of the area occupied by forest trees; or lands previously having such cover and currently developed for nonforest use.

Nonmarket - Products derived from National Forest resources that do not have a well-established market value, for example, wilderness, wildlife.

Nonpriced Outputs - Outputs for which there is no available market transaction evidence and no reasonable basis for estimating a dollar value comensurate with the market values associated with the priced outputs.

Off-Road Vehicle (ORV) - A motorcycle, dune buggy, four-wheel drive, snowmobiles, or other vehicle that is designed to operate off of a road.

Old Growth - Overmature trees well past their optimum growth period and past age of rotation.

Opening - An area without trees.

Output - The goods, end products, or services that are purchased, consumed, or used directly by people. Goods, services, products, and concerns produced by activities that are measurable and capable of being used to determine the effectiveness of programs and activities in meeting objectives. A broad term for describing any result, product, or service that a process or activity actually produces.

Overwood Removal - A type of harvest which is designed to remove part or all of the over-aged trees in the overstory. The objective is to release the acceptably stocked understory.

Persons-at-one-Time (PAOT) - In recreation, PAOT means persons at one time. It is a measure of recreation capacity in the number of people that can occupy a site or area and achieve a desired recreation experience. It can be used as a design standard and an indicator of productive capacity for a site or area.

Partial Overstory Removal (POR) - Removal of a portion of the overstory from a manageable understory, where an intolerable amount of damage would be done to the understory if all the overstory were removed at one time. The intention in a partial overstory removal cut is to remove the remainder of the overstory a short time later.

Partial Retention - A visual quality objective which means human activities may be evident, but must remain subordinate to the characteristic landscape.

Planned Ignitions - A fire started by a deliberate management action.

Planning Horizon - The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions. (36 CFR 219.3)

Planning Period - One decade. The time interval within the planning horizon that is used to show incremental changes in yields, costs, effects, and benefits. (36 CFR 219.3)

Plant Communities - A homogeneous unit in respect to the number and relationship of plants in the tree, shrub, and ground cover strata.

Precommercial Thinning - The practice of removing some of the trees less than merchantable size from a stand so that the remaining trees will grow faster.

Prescribed Burning - Use of fire in forest management for hazard reduction and vegetative manipulation.

Prescribed Fire - A wildland fire burning under specified conditions which will accomplish certain planned objectives. The fire may result from either planned or unplanned ignitions. Plans for use of unplanned ignitions for this purpose must be approved by the Regional Forester.

Present Net Value - The difference between the discounted value (benefits) of all outputs to which monetary values or established market prices are assigned and the total discounted costs of managing the planning area. (36 CFR 219.3)

Productivity Classes - Refer to productivity of the land itself. It is a measure of fertility and moisture availability. In technical literature, productivity is classified using a "Site Index" or "Site Class."

Public Issue - A subject or question of widespread public interest relating to management of National Forest System.

Public Participation - Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service planning.

Purchaser Credit - Credit earned by the purchaser of a National Forest timber sale by construction of contract-specified roads. Earned purchaser credit may be used by the purchaser as payment for National Forest timber removed.

Real Dollar Value - A monetary value which compensates for the effects of inflation.

Recreation Capacity - The amount of people at one time that can occupy a site or area without causing environmental damage or imparing the desired recreation experience to be provided in that site or area.

Recreation Information Management (RIM) - A computer oriented system for the organization and management of information concerning recreation use, occupancy, and management of National Forest lands.

Recreation Opportunity Spectrum (ROS) - This refers to a system used to identify and analyze broad categories of recreation opportunity on Forest lands. It involves a Forestwide recreation analysis of the physical setting (remoteness size and evidence of humans), social setting (user density and character), and managerial setting (managerial regimentation and noticeability) on the Forest. It is designed to provide an indication of the kind of experience the recreationist is likely to find in an area.

Recreation Visitor Day (RVD) - A measure of recreational use of a site area. One recreation visitor day consists of 12 hours of recreation use of a site or area. Recreation visitor days are used as a recreation production or output capacity measure.

Reforestation - The restocking of an area with trees.

Regeneration - The reforestation of a tree crop by natural or artificial means.

Regeneration Cut - A cut in a particular stand of timber designed to remove the existing volume and start a new crop. To qualify for regeneration cutting, a stand must be (1) at or beyond rotation age, and (2) lack an understory of acceptable stocking worthy of management, or (3) have a disease-infected understory which will not develop into a future crop, or (4) have an understory which it is not currently physically possible to save during felling, skidding, and slash disposal operations.

Regeneration Methods - Silvicultural practices used to remove existing stands of timber and start new stands.

Regulations - Generally refers to the Code of Federal Regulations, Title 36, Chapter II, which cover management of the Forest Service.

Rehabilitation - Actions taken to protect or enhance site productivity, water quality, or other values for a short period of time.

Research Natural Areas (RNA's) - Formally designated tracts of land where natural processes are allowed to continue and where natural features are preserved for education and research.

Resource Production - The production and use of natural resources, such as timber and forage.

Resource Values - The tangible and intangible worth of forest resources.

Restoration - The long-term placement of land back into its natural condition or state of productivity.

Retention - A visual quality objective which means human activities are not evident to the casual forest visitor.

RIM - See Recreation Information Management.

Riparian Areas - Geographically delineated areas, with distinctive resource values and characteristics, that are comprised of the aquatic and riparian ecosystems, floodplains, and wetlands. They include all areas within a horizontal distance of 100 feet from the edge of perennial streams or other water bodies (FSM 2526.11, Amend. 26, 4/80).

ROS - See Recreation Opportunity Spectrum.

Rotation - The number of years required to establish (including the regeneration period) and grow timber crops to a specified condition or maturity for regeneration harvest. Selected management prescriptions in the Forest Plan provide the basis for the rotation age.

RPA - Forest and Rangeland Renewable Resources Planning Act of 1974.

RVD - See Recreation Visitor Day.

Sanitation Salvage - The removal of dead, damaged, or susceptible trees primarily, essentially to prevent the spread of pests or pathogens and promote forest hygiene.

Sawtimber - Trees that will yield logs suitable in size and quality for the production of dimension lumber.

Sensitive Species - Those species which (1) have appeared in the Federal Register as proposals for classification and are under consideration for offical listing as endangered or threatened species, (2) are on an official State list, or (3) are recognized by the Regional Forester to need special management in order to prevent the need for their placement on Federal or State lists.

Shelterwood Cut (SW) - Designated trees are left to provide seed, shelter, and shade for the new crop. The rest of the mature stand is removed. Regeneration of the new stand may be by natural seedfall or by planting. After the new stand is established, a final harvest removes the shelterwood and releases the young trees to develop in the open as an even-aged forest.

Silviculture - The application of ecological theory and principles to achieve timber stand management objectives.

Site Index - A measure of the relative productive capacity of an area for growing wood. Measurement of site index is based on height of the dominant trees in a stand at a given age.

Skyline Logging - A system of cable logging in which all or part of the weight of the logs is supported during yarding by a suspended cable.

Snag - A nonliving standing tree. The interior of the snag may be sound or rotted.

Socioeconomic - Pertaining to, or signifying the combination or interaction of, social and economic factors.

Soil Resource Inventory (SRI) - An inventory of the soil resource based on landform, vegetative characteristics, soil characteristics, and management potentials.

Special Interest Area - Are lands set aside to preserve and interpret unique geological, biological, and cultural areas for education, scientific, and public enjoyment.

Stand - A community of trees or other vegetation sufficiently uniform in composition, constitution, age, spatial arrangement, or condition to be distinguishable from adjacent communities and so form a silvicultural or management entity.

SHPO - State Historic Preservation Office

Stocking - The degree to which trees occupy the land, measured by basal area and/or number of trees by size and spacing, compared with a stocking standard, such as, the basal area and/or number of trees required for full utilization of the lands' growth potential.

Stocking Level Control - The process of maintaining the desirable number of trees to achieve optimum growth and management. It not only includes thinnings (both precommercial and commercial) but other cultural work such as brush and rodent control as well.

Streamflow - The discharge of water from a watershed that occurs in a natural stream channel.

Streamside Management Units (SMU) - Areas of land adjacent to streams that are managed in such a manner as to protect and enhance the aquatic habitat and water quality.

Suitability - The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.

Suitable Forest Land - Land to be managed for timber production on a regulated basis.

Sustained Yield - The achievement and maintenance in perpetuity of a periodic output of the renewable resources without impairment of the productivity of the land.

Thermal Cover - Cover used by animals to lessen the effects of weather; for elk, a stand of coniferous trees 40 feet or more tall with an average crown closure of 70 percent or more.

Thinning - The practice of removing some of the trees in a stand so that the remaining trees will grow faster due to reduced competition for nutrients, water, and sunlight. Thinning may be done at two different stages:

1. Commercial thinning - Removing trees that have reached sufficient size to be manufactured into a product.

2. Precommercial thinning - Removing trees that are too small to make a merchantable product.

Threatened Species - Any species listed in the Federal Register which is likely to become an endangered species within the foreseeable future throughout all of a significant portion of its range.

Thrifty - Thrifty refers to the condition of a stand of trees or to the condition of a single tree. Generally a thrifty tree is a healthy tree with dark green needles, a fairly full crown, a pointed crown indicating fairly rapid growth, and otherwise in generally healthy appearance. A thrifty stand would be composed of trees, most of which are individually thrifty.

Timber Classification - Forested land is classified under each of the land management alternatives according to how it related to the management of the timber resource. Timber classifications are Nonforest, Forest, Suitable, Unsuitable, and Commercial.

Timber Harvest Schedule - The quantity of timber planned for sale and harvest, by time period, from the area of land covered by the Forest Plan. The first period, usually a decade, of the selected harvest schedule provides the allowable sale quantity. Future periods are shown to establish the levels of yield which will be achieved and maintained.

Timber Stand Improvement - Measures such as thinning, pruning, release cutting, prescribed fire, girdling, weeding, or poisoning of unwanted trees aimed at improving growing conditions for the remaining trees.

Tolerance - The ability of a tree to grow satisfactorily in the shade of, and in competition with, other trees.

Understory Vegetation - Grass, small trees, shrubs, and other plants found beneath the overstory (the trees comprising the forest).

Uneven-Aged Management - The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection.

Unplanned Ignition - A fire started at random by either natural or human causes, or a deliberate incendiary fire.

Utility Corridor - A strip of land dedicated primarily to some form of transportation, communications, or power.

Viable Population - A viable population consists of the number of individuals, adequately distributed throughout their range, necessary to perpetuate their existence in natural, genetically stable, self-sustaining populations.

Viewshed - The total landscape seen or potentially seen from all or a logical part of a travel route, use area, or water body.

Visual Quality Objectives (VQO's) - Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape.

1. Preservation - Ecological change only here.
2. Retention - Human activities are not evident to the casual Forest visitor.
3. Partial Retention - Human activity may be evident, but must remain subordinate to the characteristic landscape.
4. Modification - Human activity may dominate the characteristic landscape, but must, at the same time, follow naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middleground.
5. Maximum Modification - Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

Visitor Day - See Recreation Visitor Day.

Visual Quality Objectives - A desired level of visual experience based on physical characteristics and sociological values of an area. Refers to degree of modification of the natural landscape by retention, partial retention, modification, and maximum modification categories.

Visual Resource - That part of the forest that is seen by the human eye; the visual landscape.

Wetlands - Areas that are inundated by surface or ground water with a frequency sufficient to support a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

WFUD - Wildlife and Fish User Day - One WUFD consists of 12 hours of recreation that is the result of fish or wildlife.

Wild and Scenic Rivers - Those rivers or sections of rivers designated as such by congressional actions under the 1968 Wild and Scenic Rivers Act, as wild, scenic, or recreational by an act of the Legislature of the State or States through which they flow. Wild and scenic rivers may be classified and administered under one or more of the following categories:

1. Wild River - Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
2. Scenic River - Those rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
3. Recreational River - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Wilderness - An area established by Congress and managed under the direction of the 1964 Wilderness Act.

Wildfire - Any wildland fire that requires a suppression response.

Working Group - Comprises those parts of a forest that have generally the same silvicultural management and rotation.

Yarding - The moving of logs from the stump where cut to a central concentration area or landing.

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